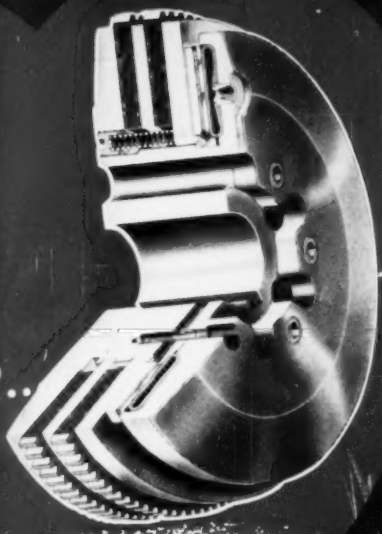
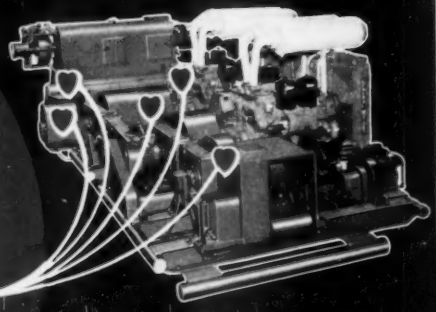
REVIEW AND FORECAST Number

# L AND GAS JURNAL


"the CLUTCH is the HEART of a DRILLING RIG"...





WILSON GIANT ROADMASTER RIG

Wilson AIR-TUBE DISC CLUTCH IS...

## THE WORLD'S BEST!

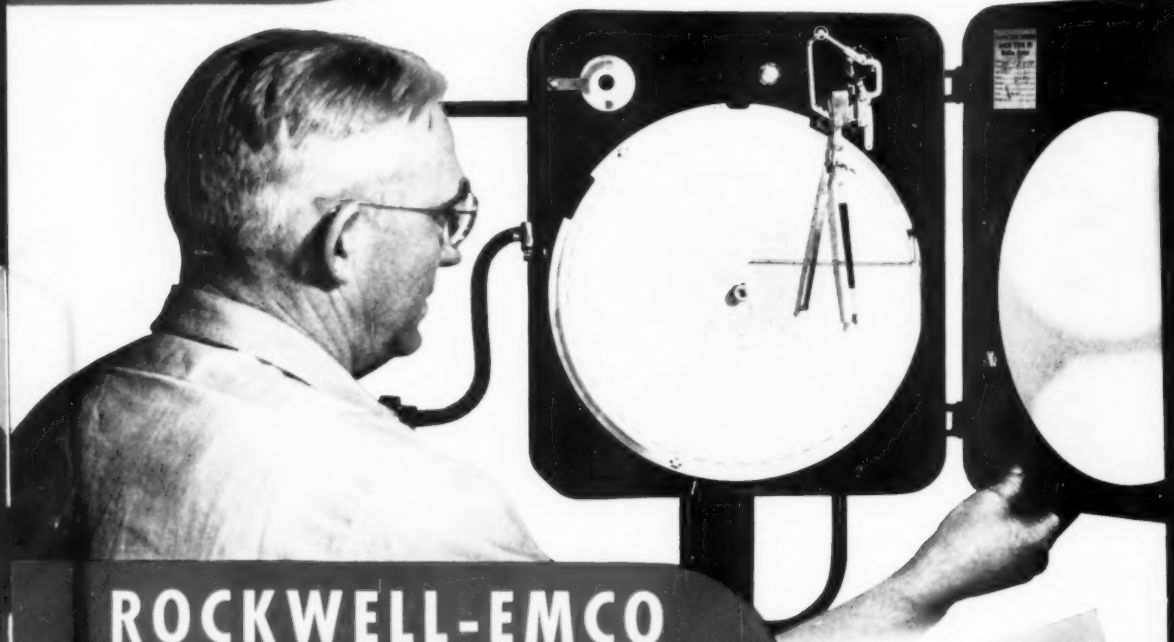
This type of clutch combines all the advantages inherent in air operation, such as convenient remote control, small manual pressure required for full torque, smooth starting and controlled torque. In addition, it gives freedom from self-engagement or reduced capacity, due to centrifugal force; and has much greater torque capacity than radial type air clutches. No packing to leak or let water or oil into the clutch friction surfaces. All air connections are on the outside and easily accessible. This is without a doubt the finest clutch yet developed for this type service, providing great capacity in minimum space, no adjustments, and practically impossible to burn up. *Over 500 of these Air-Tube Disc Clutches have been placed in service within the last two years and not a single repair part for them has been sold!*

Wilson MANUFACTURING CO., INC., WICHITA FALLS, TEXAS



**PRICE 50 CENTS** TABLE OF CONTENTS PAGE 153 **JANUARY 26, 1950**

# IT'S SIMPLE TO SERVICE



## ROCKWELL-EMCO *Orifice Meters*

WITH ROCKWELL CHART DRIVES

### *THEIR SERVICE EASE SAVES YOU MONEY!*

In Rockwell-Emco orifice meters you get the service convenience of a design that can be quickly disassembled and built up using common everyday tools. You get the economy of a unit monometer construction which permits the high pressure chamber to be interchanged with other chambers of higher or lower range to adapt the gauge to varying field conditions. You get stronger parts, corrosion resistant parts; a better design that pays dividends in the form of sustained meter accuracy and longer life.

To get all these advantages—get Rockwell-Emco's. Contact the nearest District Office for an eye-opening demonstration.

**HOW TO IMPROVE ACCURACY... SAVE ON CHART COMPUTATION COSTS**

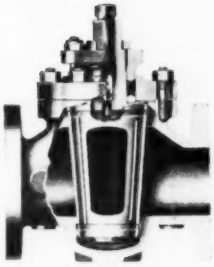
*ROCKWELL-EMCO INTEGRATOR*

This machine mechanically and exactly calculates the extension of orifice meter charts by directly tracing the static and differential records made by the gauge in the field. One operator can handle up to 300 average charts a day. Write for bulletin 1016.

**Pittsburgh Equitable Meter Division**
**ROCKWELL MANUFACTURING COMPANY**
Pittsburgh 8, Pa.

Atlanta Boston Chicago Columbus Houston Kansas City Los Angeles New York Pittsburgh San Francisco Seattle Tulsa

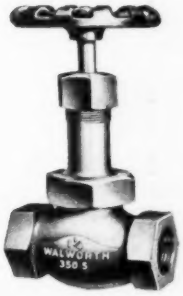
# ● VALVES
# ● PIPE FITTINGS



Walworth
Lubricated Plug Valve

Walworth
Steel Gate Valve

Walworth
Iron Body Gate Valve




Walworth
"500 Brinell" Bronze Globe Valve

Walworth
Iron Body Saddle Gate Valve

Walworth
Cast Steel Flanged Fittings

## SINCE THE BEGINNING OF THE PETROLEUM INDUSTRY Walworth

**has been supplying producers and refiners with the quality products they demand . . .**

The petroleum industry knows that years of engineering experience and development are back of all Walworth Valves and Pipe Fittings. Quality of workmanship, design and material are combined in every Walworth product to assure long years of trouble-free service.

The valves and fittings shown here are typical of Walworth's complete line of steel, iron, bronze, and special alloy valves and fittings.

You can get all the facts about the complete Walworth line in the 600 page Catalog 47. Write for a copy.

# WALWORTH
## valves and fittings

**60 EAST 42nd STREET, NEW YORK 17, N. Y.**

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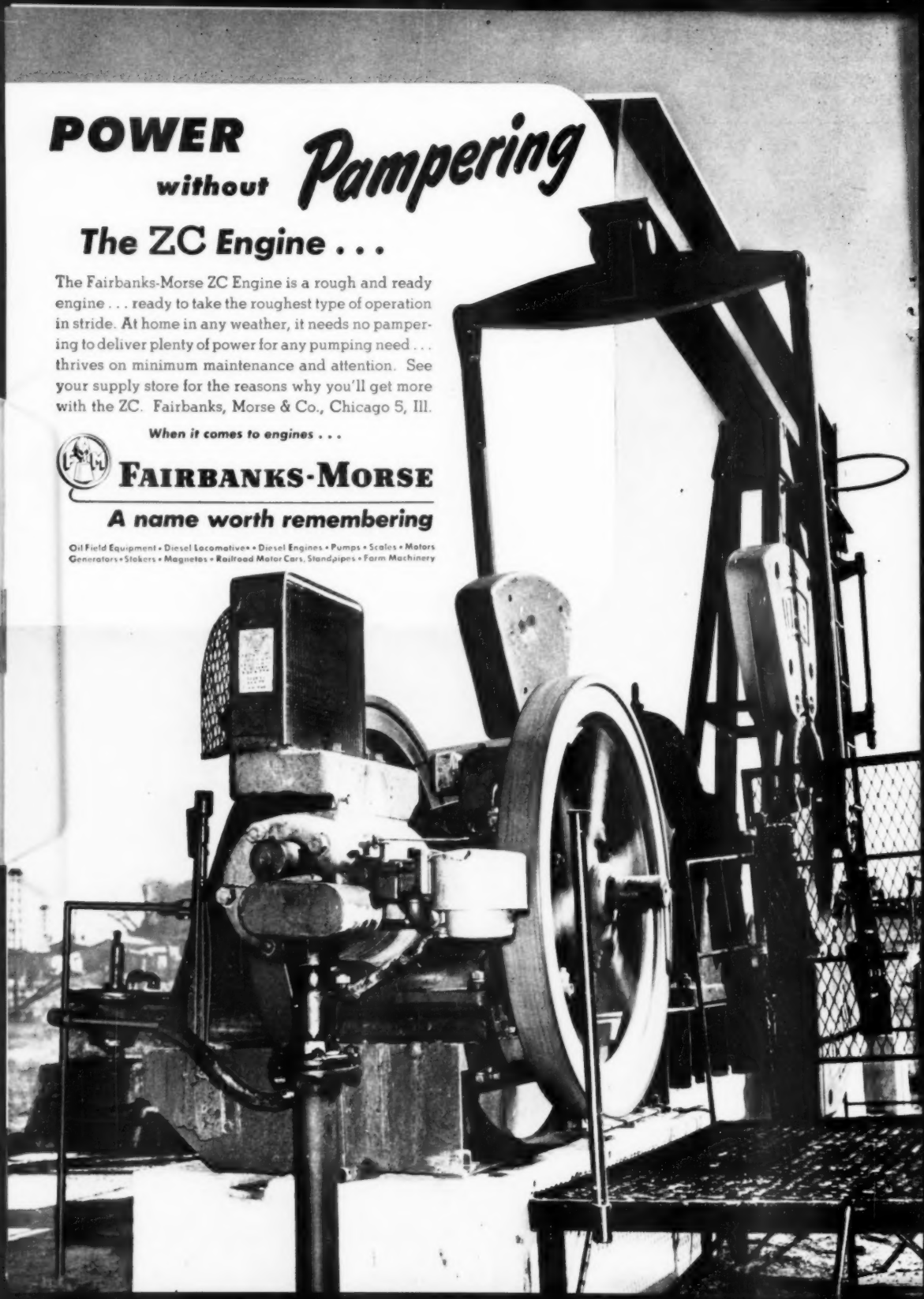
The Oil and Gas Journal, published Thursdays by The Petroleum Publishing Company. Entered as second-class matter September 1, 1910, at post office at Tulsa, Okla., under act of March 3, 1879. U. S. and foreign rates to the petroleum industry, $3 yearly. Copyright 1950.


POWER
without
Pampering
The ZC Engine . . .
The Fairbanks-Morse ZC Engine is a rough and ready engine . . . ready to take the roughest type of operation in stride. At home in any weather, it needs no pampering to deliver plenty of power for any pumping need . . . thrives on minimum maintenance and attention. See your supply store for the reasons why you'll get more with the ZC. Fairbanks, Morse & Co., Chicago 5, Ill.
When it comes to engines . . .
FAIRBANKS-MORSE
A name worth remembering
Oil Field Equipment • Diesel Locomotives • Diesel Engines • Pumps • Scales • Motors
Generators • Stokers • Magnetos • Railroad Motor Cars, Standpipes • Farm Machinery

# AMERICAN Pumping Units

## • • • Hold Pumping Costs Down

You can choose from many different combinations of structure and reducer sizes of American Units. This wide range of sizes makes it possible to get an American Unit for the most efficient service on your wells.

Every American Pumping Unit, from the husky little T-5 to the big, powerful T-27, is designed to A.P.I. standards.

For longer service with less servicing, and a bigger return on your pumper investment, specify AMERICAN... proven by 25 years of service to the oil industry.

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Kilgore, Tex., Ph. 138 Odessa, Tex., Ph. 3472

Export Office:
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**AMERICAN MANUFACTURING COMPANY OF TEXAS**

FORT WORTH, TEXAS PHONE 8-2301

YOU CAN BE **SURE**.. IF IT'S

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Turbines

Turbo Generators

Ignitron Rectifiers

A. C. Motors

Gear Motors

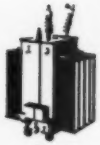
Speed Reducers

Corrosion Resisting Motor Control

Circuit Breakers for Hazardous Locations

Disconnecting Switches

Instruments



Power Transformers

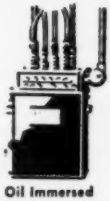
Distribution Transformers and Switchgear

Capacitors

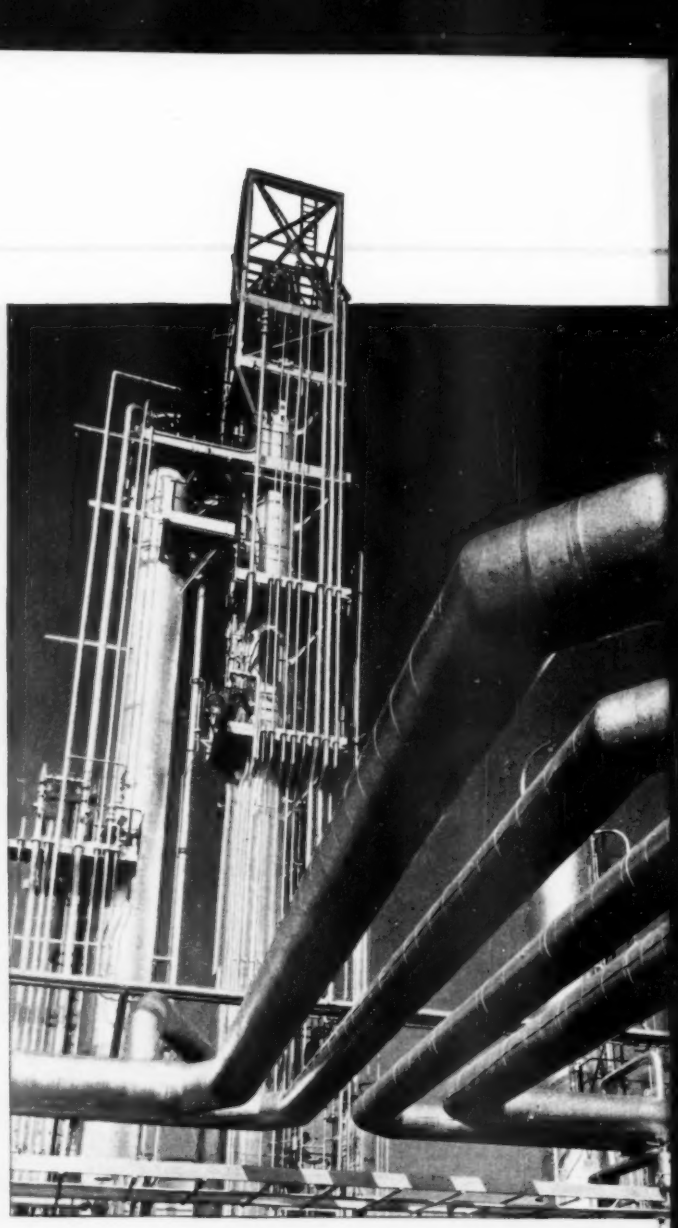
Industrial Lighting

Electronic Tubes

Oil Immersed Pushbuttons



Oil Immersed Panelboards



# Westinghouse

EQUIPMENT FOR THE PETROLEUM INDUSTRY

# *Unit Responsibility*

## CUTS REFINERY POWER COSTS

The manufacturer of your power generating and distribution equipment can play a vital role in providing the most efficient power system for your refining and petrochemical processes. In serving you, that manufacturer should be capable of:

1. Providing the complete line of power equipment your process may require.
2. Furnishing you co-ordinated engineering and supervision of installation.
3. Giving you the benefit of years of experience in the application of power equipment in the Petroleum Industry.

These elements of unit responsibility add up to a reduction in costs. You get them all from Westinghouse.

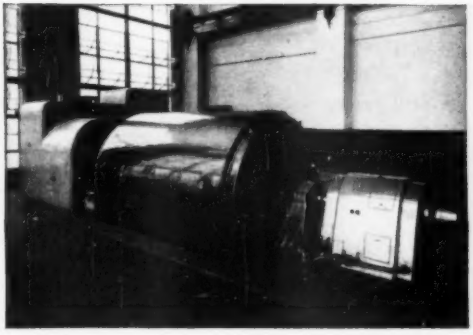
**GENERATION:** Westinghouse gives you the complete installation for producing power, plus help in working out your electrical and steam requirements for most efficient plant balance.

**DISTRIBUTION:** Westinghouse makes a correlated line of distribution apparatus, ranging from the smallest arrester to the world's largest substation. All indoor and outdoor enclosures are Bonderized to resist corrosion, and outdoor switchgear is additionally protected by all-weather undersurface coating.

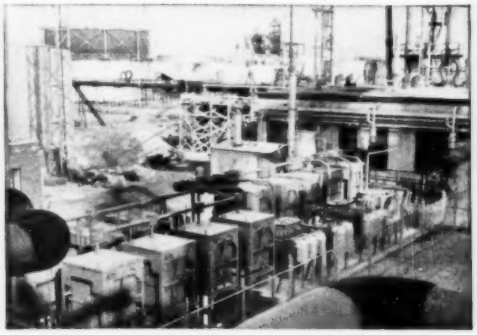
**UTILIZATION:** Westinghouse makes a full line of mechanical drive turbines and oil refinery motors, ranging from small, explosion-proof, fan-cooled, Life-Line motors to the largest explosion-resisting, inert-gas-filled, squirrel-cage type motors ever built. A complete line of Westinghouse controls, including corrosion-proof or explosion-proof types where needed, is also available to meet the rigid requirements of refinery service.

Give us an opportunity to assume this unit responsibility and help you find the solution to your refinery power problems. Call your nearest Westinghouse office, or write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-94803



This Westinghouse 7500-kva turbogenerator is installed in a large refinery power plant. Where utility power is not available in sufficient quantities for a large refinery, units of this type provide an economical source of power.



The use of Westinghouse oil-immersed equipment suitable for hazardous and corrosive atmospheres made it possible to locate this motor control and distribution center near the loads, thus reducing length of individual circuit runs.

# DOES YOUR POWER STACK UP WITH LCP* FOR *Flexibility?*

## MORE and MORE WELLS ARE PUMPED BY *LCP EVERY DAY!

I'm a **FLEXIBLE** fellow! I can take on a full 24-hour shift or work according to any fractional time schedule! You pay only for the power required to get the job done! My **FLEXIBILITY** —plus automatic control, lower first cost, and lower upkeep stack up in my favor! The Power Engineer of your Utility Electric Power Company has proof of my performance—give him a call today!

*LOW COST POWER

**PETROLEUM ELECTRIC POWER ASSOCIATION**

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From airplanes to washing machines, from turret lathes to thermometers, LANDIS threads serve the world. LANDIS Threading Equipment cuts threads, grinds threads and taps threads — it produces threads in mass production, it produces threads for maintenance — one thread or thousands. And LANDIS engineering know-how is ready to help in original design and product development, or to devise special methods and equipment. In short, LANDIS Machines and Men can help on any part of your threading job.
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GET 2 to 25 TIMES LONGER LIFE

# with one of these 9 HAYNES hard-facing alloys

Protect metal parts from wear the economical way—by hard-facing them with a HAYNES alloy. These brief descriptions will help you select the right one for your wear problem.

## HAYNES hard-facing alloys are easy to apply by all welding methods:

***OXY-ACETYLENE***

Smooth sound deposits can be made by both manual and automatic methods with HAYNES bare rods.

***METALLIC ARC***

Flux-coated rods, available in practically all grades, provide a steady, quiet arc

***"HELIARC" WELDING***

This new process provides another fast method for depositing HAYNES bare rods.

## HAYNES STELLITE Cobalt-Base Alloys

HAYNES STELLITE Alloy Grade 1: The hardest of the cobalt-base alloys recommended for coating surfaces subjected to extreme abrasive wear and slight impact. It is especially useful for resisting heat or corrosion combined with abrasion.

HAYNES STELLITE Alloy Grade 6: The toughest and strongest of the cobalt-base alloys. Recommended for coating surfaces subjected to mechanical or thermal shock. Produces sound deposits that will not check or crack.

HAYNES STELLITE Alloy Grade 12: A hard, wear-resistant alloy that is tough enough to withstand shock and impact. Recommended for coating large areas where deposits free from checks or cracks are required.

## HAYNES Iron-Base Alloys

HAYNES Alloy 90: Highly wear-resistant. Resists oxidation and retains much of its original hardness at temperatures up to 1,000 deg. F. Withstands moderate impact.

HAYNES Alloy 92: A moderately low melting point rod. Use it on thin sections where low-temperature deposition is necessary to prevent distortion and on large parts when preheating is difficult or impossible. Deposits have a hardness of Rockwell C 65.

HAYNES Alloy 93: Gives excellent service where high cold-hardness is necessary. It is suitable for applications involving abrasion from sand, gravel, mill scale, or other hard particles.

HASCROME Rod: A work-hardening rod, recommended for use under conditions of severe impact. It is widely used for hard-facing rock and earth handling equipment parts. Recommended for electric application to manganese steel.

## HAYNES Tungsten-Base Alloys

HAYSTELLITE Cast Tungsten Carbide: The hardest of all HAYNES hard-facing alloys, used where utmost resistance to abrasion is required. Typical applications include oil-well drilling tools, ditcher teeth, and coal undercutter bits.

## HAYNES Nickel-Base Alloys

HASTELLOY Alloy C: Recommended for building up wearing surfaces of hot-working steel mill parts such as hot shear blades, entry guides, and shafts.

HAYNES alloys
TRADE MARK

The trade-marks, "Haynes," "Haynes Stellite," "Hascrome," "Haystellite," "Hastelloy," and "Heliarc" distinguish products of Union Carbide and Carbon Corporation or its Units.

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UCC
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**Sales Offices**
**Chicago — Cleveland — Detroit — Houston**
**Los Angeles — New York — San Francisco — Tulsa**

# West Texas Drilling Records Broken by "Oilwell" No. 96 Rig

## . . . drills 10,024 feet in 38¼ days in Benedum Field, Upton County

● All fast drilling records in the Benedum Field, West Texas, were recently broken when an "Oilwell" No. 96 Rig on the Warren Wright-C. W. Chancellor No. 1 well drilled 10,024 feet in the official time (less tests and waiting for cement) of 38 days and 3 hours. This is 19 days faster than the next best time reported in the area, which was 57 days for 10,000 feet. A majority of wells in the field take around 62 days. This means the new record beat the average by almost 40%. The well is a producer and was finally bottomed at 11,525 feet.

How do the rig operators account for this great increase in drilling speed? Mr. Herman Aweas, general drilling superintendent for Helmerich and Payne, drilling contractors, says, "We have the best men we could find anywhere. They deserve a lot of credit. Then we backed them up with the best drilling equipment we could buy."

**"Oilwell" No. 96 Draw Works with Triple Engine Drive.** "This is by far the best rig I've ever used," said Sam Squyres, Driller. "It's faster going in and coming out of the hole. We made a round trip at 6,300 feet in two hours."

**"Oilwell" No. 220-P and No. 18-P Slush Pumps.** "You're just wasting your time and money if you don't use "Oilwell" Pumps equipped with DI-HARD Liners," says Max Self, toolpusher. "We've used one set of DI-HARD Liners for 24,000 feet and they're not worn out yet."

**The "Oilwell" Brantly Rotary Feed Control.** This equipment paid for itself two or three times in drilling time saved. It keeps the bit on the bottom for maximum drilling efficiency even when the driller steps away from the controls for a few minutes.

***How they did it.*** The Chancellor No. 1 well was spudded-in April 10, 1949, using an "Oilwell" No. 96 Rig which had already drilled three deep wells in fast time. It was tough going from the very start with shale, limestone, rock and chert all the way down. At 10,024 feet, 73 bits had been used.

4½-inch drill pipe was used in the well. In keeping with West Texas drilling practices, 21-6¾" drill collars, weighing approximately 60,000 lbs. were used.

With the responsive power of the "Oilwell" No. 96, only eight lines had to be strung in the blocks; permitting the establishing of a highly favorable ratio between round-trip time and total drilling time.

Of course, the "Oilwell" No. 220-P Power Slush Pump contributed to this speed record by providing abundant mud circulation at desired pressures.

What's more, the "Oilwell" Brantly Rotary Feed Control kept the feed smooth and constant at all times, probably saving as much time as any other one piece of equipment.

When you can save weeks of drilling time, you save thousands of dollars, too! That's why so many drilling contractors choose "Oilwell" equipment in preference to any other. "Oilwell" equipment is engineered to work together and "Oilwell" Field Service Engineers are on the job constantly to help you keep it running at top efficiency. Next time buy "Oilwell."

**"Oilwell" companion equipment to the No. 96 Rig**

No. 220-P Power Slush Pumps
No. 500 or 580 Crown Block
No. 400 or 480 Streamline Traveling Block
No. 300-D Swivel (400-ton capacity)
21-A Super Speed or 27½-B Rotaries
Brantly Rotary Feed Control

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UNITED STATES STEEL

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## has the tools...

## TO SAVE YOU MONEY ON MARINE REPAIRS

You, IN THE OIL INDUSTRY, know the importance of the right tools for the right job! It is the same with marine repairs—the right tools for the job can save more time and more money. Take, for instance the 800,000 lb. press shown above. . . . AVONDALE'S other special tools include rollers, plate brakers, lathes and many others. These, plus AVONDALE'S 24-hour machine shop service, can save YOU money on all types of marine repairs—no matter how large or how small. Call AVONDALE, consult our experts—get our estimate on your job.

STEEL

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*Uncle Sandy*

THE UNITED SUPPLY MAN

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Service
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**UNITED SUPPLY**
**AND *Manufacturing* COMPANY**
TULSA, OKLAHOMA
Stores in Kansas, Oklahoma, Texas, Louisiana, and New Mexico

# Standardize AND Save WITH "Caterpillar" Oilfield Hands

Three "Caterpillar" Diesel D18000 Engines power an Emsco GA550 draw works and Gardner-Denver mud pump at the Arrow Drilling Company's rig No. 19, drilling Wesley No. 5 for Midcontinent Petroleum Co. near Ardmore, Oklahoma. The derrick is a Lee C. Moore 127-ft. jack-leg type. Hole will be completed at 4200 ft. Drilling time—10 to 14 days.

Working since 1947, this "Caterpillar" Diesel D4400 Engine powers an OCS pumping unit for the Shell Union Oil Co., Inc., on the Reynolds lease near Sulphur Bluffs, Texas. Production averages 800 barrels of crude oil per day. Gang pusher E. M. Moore, speaking about the D4400s on this lease, says: "The biggest thing about them is they run all the time. I've had less trouble with these 'Cats' than with any engine I've seen. I estimate each of them has run 80,000 hours."

No matter what or where your job is—exploration, drilling, pumping, servicing or pipelining—you'll find it pays to standardize on "Caterpillar" Diesels. These Big Yellow Engines and Machines are tough oilfield hands. Ruggedness is built into every inch of them for trouble-free operation. They're engineered for steady power, so you don't have to tinker with them. And with one manufacturer responsible for the whole crew—and your nearby "Caterpillar" dealer well-equipped with parts and know-how—you can count on fast, efficient service 'round the clock.

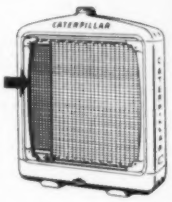
Here's another fact worth noting. Every "Caterpillar" Diesel Engine delivers horsepower as advertised. Specify them when you order your rigs, pumps, ditchers, shovels, air compressors, welders, marine equipment and other machinery—and you can be sure the rated power is all there. There is also a complete line of "Caterpillar" Diesel Electric Sets with a selection of voltages to match your job, as well as Tractors, 'Dozers and Earthmoving Equipment that can't be beat for money-saving performance. Get a line on them today from your "Caterpillar" dealer!

**CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS**

One of 15 "Caterpillar" units on the job, this D7 Tractor with Trackson Pipelayer uses a cable swing to "set in" pipe near Bastrop, La., for the Tennessee Gas Transmission Co., Houston, Texas. Master mechanic E. B. Whitten says: "A lack of immediate parts service can cripple the whole pipe-line team . . . *all* our equipment must stay on the ball *all* the time. Our 'Caterpillar' dealer has one of the most efficient parts departments I've seen."

## LOOK UNDER THE HIDE

Lubricating oils break down at high temperatures, forming carbons, lacquers and gums —enemies of long engine life. To prevent lube oil breakdown, "Caterpillar" Engines are equipped with oil coolers. Pistons are oil sprayed to remove heat. Controlled oil temperature preserves lubricating qualities, reduces maintenance costs, adds to owner profits. *Look under the hide for quality.*




**Two** "Caterpillar" Diesel D 18 Electric Sets drive 2 stirrers, mud mixer, 2 water pumps, steamer, shale shaker, blowout preventer compressor, air compressor, blower, lights and dynamatic brake at Cusseta Wildcat, Cass County, Texas. Driller E. D. Wolcott reports: "They're no trouble at all. They handle loads and load changes without special attention."

# CATERPILLAR

REG. U. S. PAT. OFF.

# OILFIELD ENGINES

**CATERPILLAR TRACTOR CO.**
**BOX OG-1, PEORIA, ILLINOIS**

Send me, without obligation, booklet, "Oilfield Hands."

*Name*

*Address*

# COLUMBIAN

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## FACTS *Worth Remembering!*

THE outstanding reputation of Columbian Bolted Steel Tanks for low-cost, long-life service is based on factual records established in oil fields all over the world.

The Columbian Bolted Steel Tank catalog is full of additional facts concerning the extra value of these famous tanks. It explains and shows how they are precision engineered from top quality steel — how Columbian's many exclusive construction features assure easy assembly, rugged strength and extra measure of protection. Write now for your free copy.

Columbian Bolted Steel Tanks are available now for oil producers everywhere. Columbian COP-NIC Tanks, especially for sour crude, will be available when conditions permit.

**COLUMBIAN ALL-METAL BUILDINGS** are the choice of more and more oil producers for use as warehouses, engine houses, garages, equipment and storage houses. They are rigid, strong, fire-safe — require minimum up-keep cost. Write for complete information.

TANKS FOR THE WORLD

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COLUMBIAN STEEL TANK CO., P. O. Box 4226-H, Kansas City, Mo.

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***A. O. SMITH is the only Vertical Turbine Pump Manufacturer making all major pump parts in its own plants...***

- **DESIGNED TOGETHER**
- **BUILT TOGETHER**
- **TO WORK TOGETHER**

Only A. O. Smith makes all major parts of vertical turbine pumps—your assurance of unsurpassed quality control, precision fitting, years of dependable low-cost service, and one source of undivided responsibility.

Seventy-five years of experience are back of the research and engineering A. O. Smith has built into SMITHway Pumps—in improved impeller design . . . precision pump assembly . . . sturdy, long-lasting construction.

**MAXIMUM ADAPTABILITY.** SMITHway Pumps are available with SMITHway Vertical Hollow Shaft Electric Motors, flat pulley or V-belt pulley, and right-angle gear drive. You can choose either water or oil lubrication.

**STEEL WHERE STEEL BELONGS.** Discharge-head assemblies of SMITHway Pumps are heavy *steel plate,* formed and welded into the strongest, most compact design. Driver support is rigid, vibrationless, yet easily accessible. In the heavy, cast-iron, precision-machined bowls, either semi-open or enclosed type bronze impellers are available.

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# A.O.Smith

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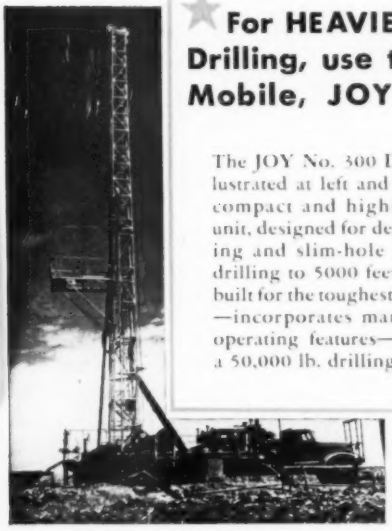
## *Meet any drilling requirement*

### ★ The NEW "150" DRILL RIG

**Latest Design—Top Performance!**

The JOY "150" (*right*) is designed for heavy-duty seismograph, electrical logging, structure testing and shallow water well drilling to 1500 feet. It incorporates the most modern improvements in drill rig design . . . has *proved* itself outstanding in the field within its capacity range.



### ★ For HEAVIER-DUTY Drilling, use the Fast, Mobile, JOY "300"

The JOY No. 300 Drill Rig, illustrated at left and below, is a compact and highly portable unit, designed for deep core testing and slim-hole production drilling to 5000 feet. Ruggedly built for the toughest field service—incorporates many superior operating features—will handle a 50,000 lb. drilling string.

### ★ INTERMEDIATE SIZES FOR EVERY NEED—THE JOY 225, 250 and 275 DRILL RIGS

**Write for Bulletins, or**

*Consult a Joy Engineer*

W & D 0230-4

## JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING · PITTSBURGH 22, PA.

IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GALT, ONTARIO

TO MARK PROGRESS

# Unrestricted Selection

## SEAMLESS WELDING FITTINGS—½ INCH THRU 30 INCHES

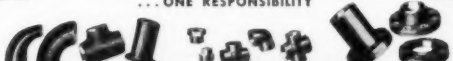
## FORGED STEEL FLANGES—½ INCH THRU 30 INCHES—LARGE O.D. THRU 96 INCHES

## FORGED STEEL FITTINGS—SCREWED AND SOCKET WELDING—⅛ INCH THRU 4 INCHES

*All Available in*

**CARBON • ALLOY**
**STAINLESS STEELS**
**ALUMINUM**
**COPPER & OTHER NON-FERROUS METALS**

A COMPLETE LINE PRODUCED UNDER ONE ROOF
... ONE RESPONSIBILITY



**LADISH CO.**

CUDAHY, WISCONSIN
MILWAUKEE SUBURB

*DISTRICT OFFICES:* New York • Buffalo • Pittsburgh • Philadelphia • Cleveland
Chicago • St. Paul • St. Louis • Atlanta • Houston • Los Angeles

Standardizing on Ladish assures unrestricted selection in meeting your entire fittings requirements. Here, at one responsible source, you get all three . . . Seamless Welding Fittings, Forged Steel Flanges and Forged Steel Fittings . . . in a complete range of types, sizes and materials, plus the dependability obtainable only with Ladish Controlled Quality.

# MASONEILAN EQUIPMENT IMPROVES PROCESS CONTROL

## 12000 SERIES DISPLACEMENT TYPE LIQUID LEVEL CONTROLLERS

For all usual liquid level control, measurement and signaling applications, including interface service.

### Ranges

Between 14 inches and 15 feet; working pressure to 1500 psi; temperatures to 750° F or minus 300° F.

### Level Instrument Mechanisms

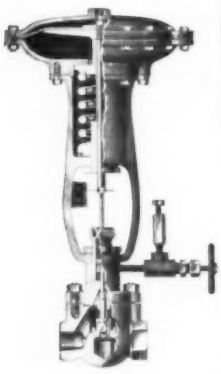
Two position Differential-Gap, Proportional or Proportional-Reset Control; Pneumatic Transmission; Pneumatic Signal Switch; Duplex Control; Control plus Pneumatic Transmission or Pneumatic Signal Switch.

## NO. 2700 PRESSURE CONTROLLER

These controllers are designed for many industrial applications requiring accurate control where more expensive instruments are not warranted. Ranges between 30" Hg. Vac. and 1000 psi. Standard proportional band 3 to 50%.

## CONTROL VALVES

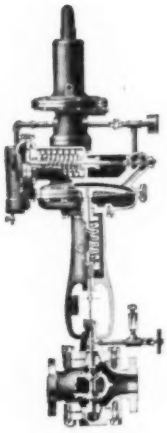
**No. 38**
Percentage V-Port
Control Valve



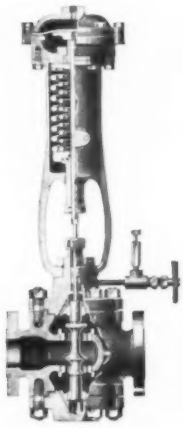
**No. 37**
Percentage Piston
Control Valve

No matter what the application — temperature, pressure, level and flow, there is a Masoneilan control valve designed to meet the requirements. They are available in a wide range of types and sizes from $\frac{1}{16}$" orifice and up.

## REDUCING PRESSURE REGULATORS



**No. 27**



**No. 35**

These Regulators have a wide variety of controlled pressure ranges and are accurate within each range. Standard sizes from $\frac{1}{2}$" to 8".

MASONEILAN

**MASON-NEILAN REGULATOR CO.**

1212 ADAMS STREET, BOSTON 24, MASSACHUSETTS, U. S. A.

*Sales Offices or Distributors in the Following Cities* — New York • Syracuse • Chicago • St. Louis • Philadelphia • Houston • Denver • Pittsburgh Cleveland • Cincinnati • Tulsa • Atlanta • Los Angeles • San Francisco • Salt Lake City • El Paso • Boise • Albuquerque
Mason-Neilan Regulator Company, Ltd., Montreal and Toronto

# UP-GRADE®

## YOUR CATALYTIC PROCESSES WITH ALCOA ALUMINA

**—for bigger yields**

**—for better quality**

If you want to up-grade your catalytic process yields, or simply reduce losses from contamination and side reactions, you'll find it advantageous to insist on ALCOA Aluminas for your $Al_2O_3$ catalysts and catalyst supports.

ALCOA Aluminas are uniform in structure and chemical purity . . . stable at elevated temperatures . . . have high resistance to erosion and crushing . . . and are moderate in cost. Typical conversions for which ALCOA Aluminas are used include: *Aliphatic hydrocarbons into aromatics, and dehydrogenation of naphthenic hydrocarbons.*

- **ALCOA *Activated* Alumina is preferred for many reactions because of its high adsorptive properties and extremely large surface area.**
- **ALCOA *Tabular* and other forms of Alumina are preferred for certain reactions where hardness and extremely high purity are relatively more important than maximum surface area.**

For top quality, specify ALCOA Aluminas for catalysts and catalyst supports. You'll get more efficient, uniform reactions and end-products of higher purity. We'll gladly send you samples and further information.

ALUMINUM COMPANY OF AMERICA,
CHEMICALS DIVISION, 618A
Gulf Building,
Pittsburgh 19,
Pennsylvania

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ALUMINUM FLUORIDE • SODIUM FLUORIDE • SODIUM ACID FLUORIDE • FLUOBORIC ACID • CRYOLITE

# *Quick-Change*
## FOR TIRED COLLARS

Drill-collar joints have a habit of wearing, getting tired. Then you're taking chances if you go on using them. And if you operate the string light, while ordinary collars are miles away being re-threaded, you abuse the drill pipe.

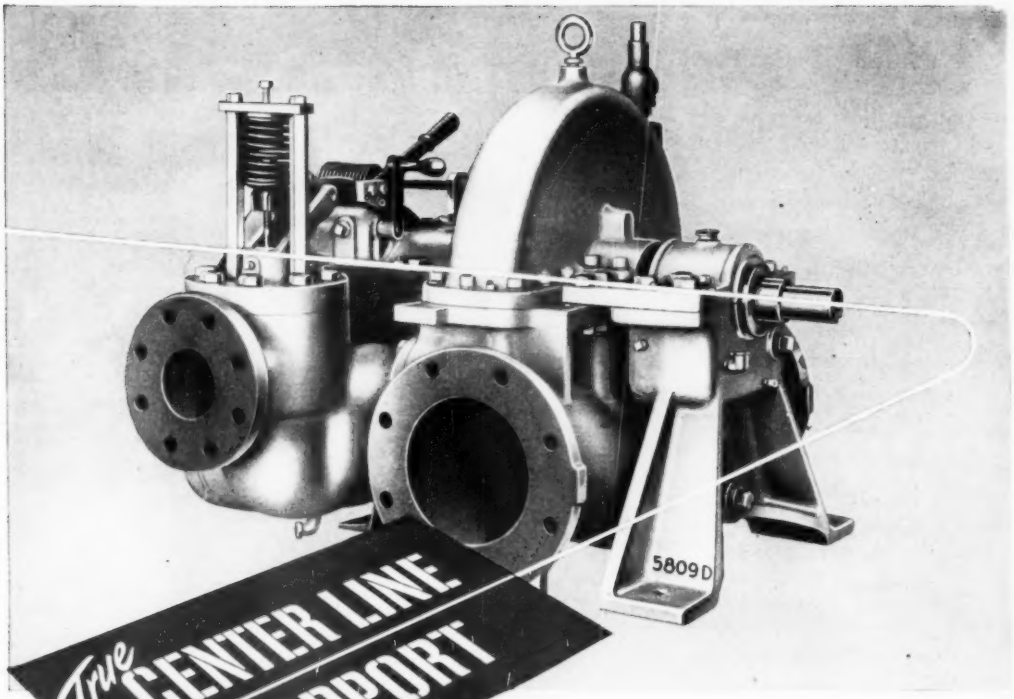
Now you can replace tired joints easily and quickly right at the rig . . . switch to National "Ideal" Replaceable-end Drill Collars. No special tools or equipment required to swap joints. Just an extra wrap or so on the cathead breaks out the old joint, spins in the replacement. And a supply of spare joints takes up relatively little room, is always on hand.

Write for a copy of the 28-page data booklet, " 'Ideal' Replaceable-end Drill Collars".

**THE NATIONAL SUPPLY COMPANY**
**GENERAL SALES OFFICE; TOLEDO, OHIO**

*DIVISION OFFICES:* CASPER, FT. WORTH, PITTSBURGH, TULSA, TORRANCE.
*CANADA:* THE NATIONAL SUPPLY COMPANY, LIMITED, ROOM 202, ALBERTA BLOCK, CALGARY, ALBERTA.
*EXPORT:* NATIONAL SUPPLY EXPORT CORPORATION, 30 ROCKEFELLER PLAZA, NEW YORK, N. Y., U. S. A., RIVER PLATE HOUSE, 12 SOUTH PLACE, LONDON, E. C. 2.

THE **NATIONAL** SUPPLY COMPANY
GENERAL SALES OFFICES: TOLEDO, OHIO
NATIONAL BLUE PRODUCTS




# True CENTER LINE SUPPORT

## assures perfect alignment with the driven machine...

Thermal expansion can't throw a De Laval CA Turbine out of line with the driven machine. The body of the turbine is supported at the *exact* center line to allow for radial expansion. The front end is mounted on a flexible channel to allow for axial expansion. Thus, both radial and axial expansion can take place under extreme temperatures without disturbing the shaft center line.

This is but one of the many features that assure trouble-free operation with the new De Laval Class CA Turbine under all operating conditions with initial steam conditions up to 600 psi, 750 F.

**Before you buy a turbine, be sure and get complete information on these additional De Laval features:**

1. A choice of eight governors.
2. Balanced double-seated bonnet-type governor valves for close control of steam flow.
3. *Positive* over-speed protection entirely separate from normal speed governor for unfailing emergency shut-off.
4. Sensitive, friction-free, wear-resistant "rocking chair" governor pivots.
5. Super-smooth, chrome plated shaft journals to make carbon rings last longer.
6. The casing and bearings split horizontally at center line for easy removal and inspection of the rotor, carbon rings and bearings.

SEND FOR CATALOG 4202-23-OG

**DE LAVAL STEAM TURBINE COMPANY, TRENTON 2, N. J.**

TURBINES • HELICAL GEARS • CENTRIFUGAL BLOWERS AND COMPRESSORS
CENTRIFUGAL PUMPS • WORM GEAR SPEED REDUCERS • IMO OIL PUMPS

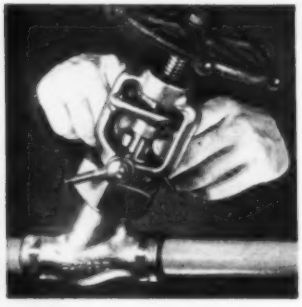
**DE LAVAL**

T-23

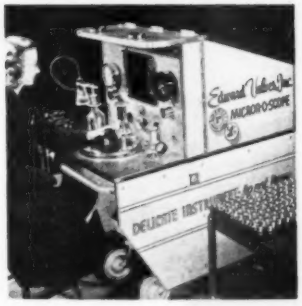
# Edward Presents

**Here's a brand-new all-purpose valve series with unusually wide applicability—ideal for almost any service where small O. S. & Y. steel valves are used. Drop forged steel for greatest strength in high pressure or temperature service . . . the simplest packing arrangement imaginable . . . tight, easily accessible union or bolted bonnet joints . . . bronze yoke bushings to prevent stem galling or freezing . . . Microscopically mated seats and disks . . . lock welded parts to prevent loosening in service . . . EValpak heat-resistant molded premium type packing . . . interchangeability of parts for reduced maintenance inventories . . .**

**These and dozens of other features are standard in the new Edward Fig. 444 series, now available for stock shipments in most sizes, ¼ in. to 2 in. inclusive, either 600 or 1500 lb sp.**



**SIMPLICITY OF PACKING**
See how easy it is to repack the new Edward Fig. 444 series. Gland is held on special rests on yoke. Gland bolts swivel out of way, can't come off. Both hands are free to insert packing in generous space between stem and yoke. Pressure-tight backseating for repacking under pressure.

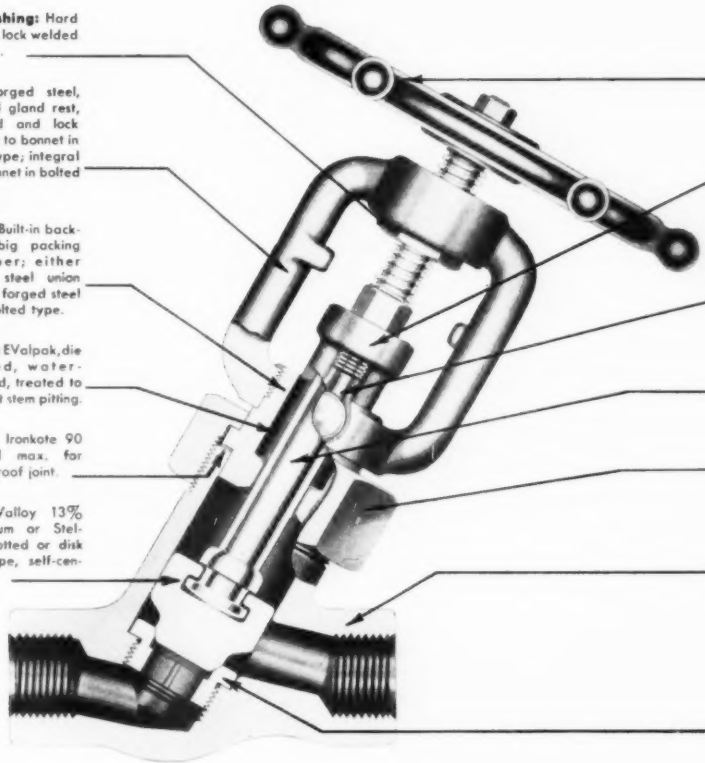



**TIGHTEST SEAT-DISK JOINT**

No valve is better than its seat-disk joint. All Edward Fig. 444 seats and disks are precision borized to identical angles in mated pairs, then tested on Edward built Micron-o-scope, measuring to .00025 of an inch, for absolute tightness and concentricity.

# The All-Purpose Steel Valve!

# NEW FIG. 444 SERIES!



**Yoke Bushing:** Hard bronze, lock welded to yoke.

**Yoke:** Forged steel, integral gland rest, screwed and lock welded to bonnet in union type; integral with bonnet in bolted design.

**Bonnet:** Built-in backseat, big packing chamber; either rolled steel union ring or forged steel stud bolted type.

**Packing:** EValpak, die formed, waterproofed, treated to prevent stem pitting.

**Gasket:** Ironkote 90 Brinnell max. for leak-proof joint.

**Disk:** EValloy 13% chromium or Stellite, slotted or disk nut type, self-centering.

**Handwheel:** Malleable iron, knobbed for easy gripping.

**Gland:** Forged steel, through bolted, accurately fitted to stuffing box.

**Swing Gland Bolts:** Forged steel, EValized for longer, corrosion-free life; swivel out of way but can't come off.

**Stem:** Hardened, centerless ground EValloy, with backseating shoulder (on disk nut on larger sizes).

**Union Ring:** Rolled or forged steel, hexagonal.

**Body:** Heat treated forged steel, inclined stem globe type for lowest pressure loss, screwed or socket welding ends.

**Seat:** EValloy 13% chromium or Stellite on stainless steel; borized in mated pair with disk.

EDWARD VALVES, INC.,
1492 West 145th St., East Chicago, Indiana

Please send a copy of Bulletin 501 describing your new Fig. 444 all-purpose forged steel valves.

Name _____

Company _____

Address _____

City _____ Zone ____ State _____

**NOW READY! New Bulletin 501 gives you dimensions, ratings, full data on the new Edward Fig. 444 series. Send coupon now for your copy.**

**Edward Fig. 444 series are built in sizes ¼ to 2 in. inclusive, globe or angle, screwed or socket welding ends, 600 or 1500 lb sp classes, in carbon or chromium molybdenum steel.**

Another Product

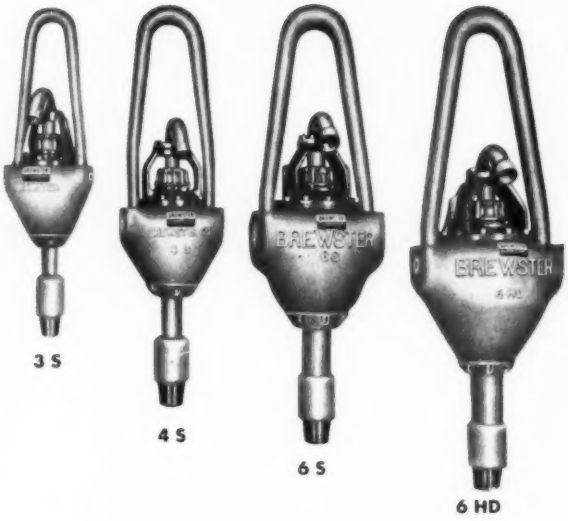
Edward Valves, Inc.

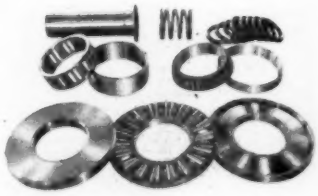
Subsidiary of ROCKWELL MANUFACTURING COMPANY

EAST CHICAGO, INDIANA

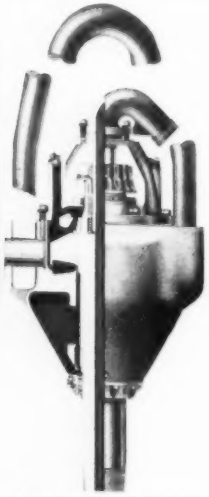
# BREWSTER OILBATH SWIVELS

There's a Brewster Oilbath Swivel for every drilling depth. All models have anti-friction roller bearings with large oil reservoirs for continuous lubrication and cooling. Streamline shape gives maximum strength and service with minimum weight, and greater safety in operation. Stem sizes are available in 3", 4", and 6". Field-perfected design means dependable performance. Write for complete information or refer to the Brewster Section of the Composite Catalog.



RIGHT: Washpipe, packing, and bearings from Brewster Oilbath Swivel. Packing may be replaced quickly and easily. Vee type pressure seal rings make swivels oil-tight and slush-proof.



ABOVE: Cross-section view of swivel design. Oil lubricated areas shown in red.

| SPECIFICATIONS | 3 S | 4 S | 6 S | 6 HD |
|---|---|---|---|---|
| Deadload Capacity of Main Bearing | 50 Tons | 120 Tons | 220 Tons | 300 Tons |
| Overall length, less coupling | 59½" | 71 7/16" | 83¾" | 89⅜" |
| Bail diameter at Bend | 2½" x 3½" | 3½" x 4½" | 4" x 5" | 4½" x 5½" |
| Hook clearance | 14" | 19¼" | 19⅞" | 24¼" |
| Oil capacity | 6½ gal. | 7 gal. | 14 gal. | 18 gal. |
| Maximum Width of Body | 18¾" | 21½" | 27½" | 30" |
| Weight, without coupling and oil | 645 lbs. | 1,125 lbs. | 2,000 lbs. | 2,580 lbs. |
| Stem Threads | 3½"° | 4½"° | 6"* | 6⅝"* |
| Gooseneck Threads, Male, Line Pipe | 3" | 3" | 4" | 4" |
| Gooseneck Threads, Female, Line Pipe | 2½" | 2½" | 3" | 3" |
| Export Shipping weight without coupling, less oil | 905 lbs. | 1,360 lbs. | 2,435 lbs. | 3,100 lbs. |
| Cubage—boxed for export | 20 cu. ft. | 29 cu. ft. | 49 cu. ft. | 62 cu. ft. |

*L.H.D.P.—Abbreviation for Left Hand Drill Pipe Threads.

BACKED BY 24-HOUR BREWSTER SERVICE

The BREWSTER Co., Inc.
SHREVEPORT, LOUISIANA

Sold by these supply stores:
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- Boveird Supply Co.
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HALEY SUPPLY CO., Calgary

BREWSTER MATCHED Drilling Equipment

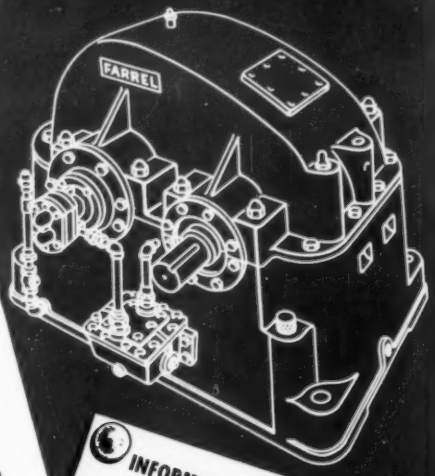
# SPEED INCREASERS
## drawn to your specifications

In 1932, Farrel developed a series of speed increasers designed specifically for pipe-line pumping service in the oil industry.

All of the units installed then and since are still in operation—conclusive proof that they were correctly designed for the job they had to do.

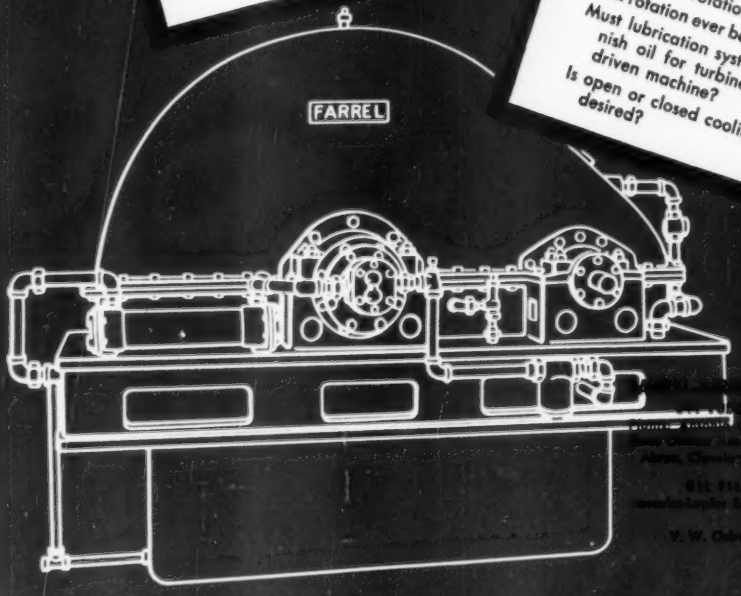
Today, the *modern* line of Farrel speed increasing units consists of 49 standard sizes with speed ratios ranging from 1:1 to 12:1. For higher ratios, units using two sets of gears are supplied with ratio range from 12:1 to 40:1.

For full information about these *designed-for-the-job* speed increasers, write for a FREE copy of NEW Bulletin No. 448.



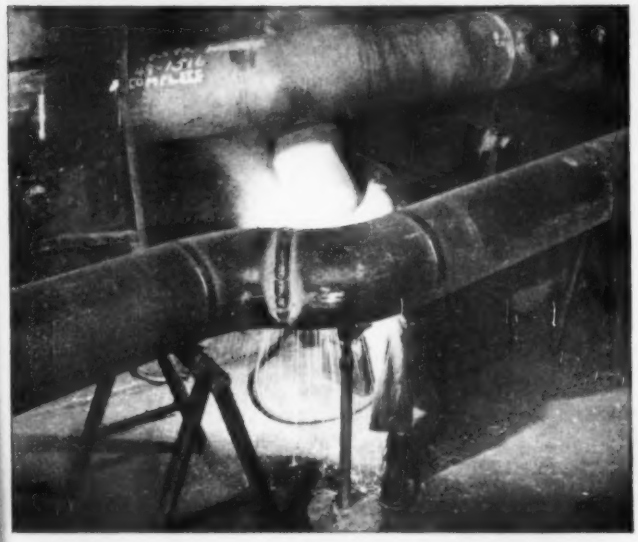

**INFORMATION REQUIRED FOR QUOTING OR ORDERING**

Kind of driver?
Kind of driven machine?
HP and RPM of driver?
HP and RPM of driven machine?
Hand of unit?
Are any shafts to be double extended?
Direction of rotation?
Will rotation ever be reversed?
Must lubrication system also furnish oil for turbine, motor or driven machine?
Is open or closed cooling system desired?




*Farrel-Birmingham*

# how to GET MORE WELDING from your PIPE WELDERS



The exceptional accuracy and uniformity of Midwest Welding Fittings enable the welder to spend more time in welding and less time in preparation. He does not have to struggle to line up fittings and pipe . . . all pipe can be cut in advance according to drawings . . . he need never compensate for inaccuracies. Time and money savings are substantial.

The dimensional accuracy and uniformity of Midwest Welding Elbows result from a unique method of manufacture. These elbows are first made slightly oversize . . . then reheated to forging temperature and brought to final size in *compression dies*. This assures true circular cross section, uniform wall thickness and accurate radius, included arc and tangents.

Midwest Welding Fittings save you money . . . there is a distributor near you . . . it will pay you to call him.

3718

**MIDWEST WELDING FITTINGS**
**Improve Piping Designs and Reduce Costs**

MIDWEST PIPING & SUPPLY COMPANY, Inc.

**MAIN OFFICES: 1450 SOUTH SECOND ST., ST. LOUIS, MO.**
**PLANTS: ST. LOUIS, PASSAIC (N.J.) and LOS ANGELES**

**SALES OFFICES**

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# THREE POWERFUL ANSWERS

## TO BRUSH, WEED and GRASS PROBLEMS!

**ESTERON**
BRUSH KILLER

2-4
**DOW WEED KILLER**
FORMULA 40

**SODIUM TCA**
90%

Tests made by Dow in cooperation with many industries and public utilities over the past five years definitely show that a right-of-way substantially free from noxious weeds and woody vegetation may be maintained with Esteron Brush Killer. This powerful Dow ester formulation has proved its effectiveness as a foliage spray or when applied directly to cut stubs and stumps to prevent resprouting.

Where woody brush or brambles are not a problem, 2-4 Dow Weed Killer, Formula 40 gives effective, progressive control of weeds growing in right-of-ways and around tank farms.

**NEW! *Sodium TCA 90%***
CONTROLS GRASSES

A new ally of maintenance crews is Sodium TCA 90%, a Dow herbicide now available for control of hard-to-kill grasses such as Johnson, Bermuda, Quack and other perennial grasses. It also kills annual grasses such as crab grass, foxtail and chess, and promises effective control of prickly pear cactus and palmetto. If a light grass cover is desired on ditchbanks and roadsides, Sodium TCA 90% may be used at lower dosages merely to retard growth for considerable periods. Sodium TCA 90% may be combined with 2-4 Dow Weed Killer, Formula 40 for weed and grass control *at one spraying.*

***See your dealer—or write to Dow for complete information.***

*Agricultural Chemical Division*
**THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN**

**USE DEPENDABLE DOW AGRICULTURAL CHEMICAL PRODUCTS**
WEED AND GRASS KILLERS • INSECTICIDES • FUNGICIDES
SEED PROTECTANT • PLANT GROWTH REGULATORS
GRAIN AND SOIL FUMIGANTS • WOOD PRESERVATIVE

**DOW**
**CHEMICALS**
INDISPENSABLE TO INDUSTRY AND AGRICULTURE

# America's Most Outstanding Truck Values

## —with more power than ever!

Here are the models to make motor-truck history. These new Chevrolet P•L trucks are advance-designed for the heaviest loads, the roughest roads, the lowest cost per trip.

They are far ahead in popularity, performance, payload, price—and they are the *most powerful trucks Chevrolet has ever built*. There is a P•L truck for every trucking job and every one is a real leader on the job.

Chevrolet Motor Division, General Motors Corporation
Detroit 2, Michigan

### Leading with all these PLus *Features:*

• TWO GREAT VALVE-IN-HEAD ENGINES: the New 105-h.p. Load-Master and the Improved 92-h.p. Thrift-Master—to give you greater power per gallon, lower cost per load • THE NEW POWER-JET CARBURETOR: smoother, quicker acceleration response • DIAPHRAGM SPRING CLUTCH for easy action engagement • SYNCHRO-MESH TRANSMISSIONS for fast, smooth shifting • HYPOID REAR AXLES—5 times more durable than spiral bevel type • DOUBLE-ARTICULATED BRAKES—for complete driver control • WIDE-BASE WHEELS for increased tire mileage • ADVANCE-DESIGN STYLING with the "Cab that Breathes" • BALL-TYPE STEERING for easier handling • UNIT-DESIGN BODIES—precision built.

## CHEVROLET

## P•L

### ADVANCE-DESIGN TRUCKS

**P*opularity L*eaders** Official truck registration figures for 1949 show Chevrolet trucks preferred over the next two makes combined—proof of the owner satisfaction they earn through the years.

**P*erformance L*eaders** The new Chevrolet P•L trucks give you high pulling power over a wide range of usable road speeds—and on the straightaway, high acceleration to cut down total trip time.

**P*ayload L*eaders** The rugged construction and all-around economy of Chevrolet P•L trucks cut operating and repair costs—let you deliver the goods with real reductions in cost per ton per mile.

**P*rice L*eaders** The Chevrolet truck line is the very lowest priced line in the field—saves on initial cost. What's more P•L trucks give owners dollar and cents savings in maintenance and operation.

CHEVROLET

# How to choose high temperature tubes for the best LIFE/COST ratio

**TIMKEN 18-8 STEEL TUBES** Shows the best combination of creep strength, oil corrosion and oxidation resistance up to 1500°F.

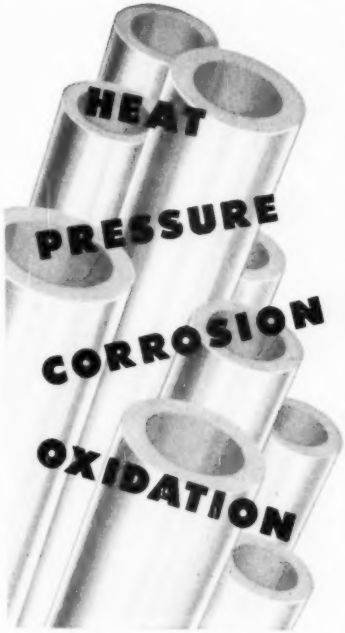
**TIMKEN SICROMO 9M STEEL TUBES** This steel possesses the maximum corrosion resistance of any of the steels below the stainless group.

**TIMKEN SICROMO 7 STEEL TUBES** For applications requiring better corrosion resistance than can be obtained with 5% Chromium type steels.

**TIMKEN SICROMO 5 S STEEL TUBES** For oxidation resistance to 1500°F. Good creep strength and corrosion resistance to 1300°F.

**TIMKEN 4-6% CR MO STEEL TUBES** For service up to 1200°F. Superior corrosion resistance. Less oxidation resistance than Sicromo 3.

**TIMKEN SICROMO 3 STEEL TUBES** For service up to 1200°F. Have excellent oxidation resistance and good corrosion resistance.




**TIMKEN 2¼% CR-1.0% MO STEEL TUBES** For service up to 1150°F. Has greater resistance to creep than 2% Cr. ½% Mo. Steel.

**TIMKEN SICROMO 2 STEEL TUBES** For service up to 1200°F., where better scale resistance is required than can be obtained with 2% Cr. ½% Mo. Steel.

**TIMKEN 2% CR-½% MO STEEL TUBES** For service up to 1150°F. Intermediate corrosion resistance plus good creep strength, fair oxidation resistance.

**TIMKEN DM STEEL TUBES** For service up to 1150°F. This steel offers outstanding creep strength.

**TIMKEN CARBON-MO STEEL TUBES** For temperature up to 1000°F. Improved creep strength makes it safer than carbon steel.

**TIMKEN CARBON STEEL TUBES** Generally for service not exceeding 900°F., where corrosion and oxidation resistance are not important.

THERE may be more than one of these 12 Timken® steels that provides the answer to your specific heat, pressure, corrosion, or oxidation problem. But only *one* will assure you of maximum service life per dollar invested.

How can you be sure which of these 12 steels will give you the best life/cost ratio? Let our Technical Staff analyze your needs. With 19 years of experience and research in high temperature tubing applications, our metallurgists are qualified to recommend the right steel to give you the service life you need at the lowest cost. Our Technical Staff, recognized authorities in the field, will be glad to assist you in making the most economical choice of high temperature tubes.

Whichever of these analyses is selected, you can be certain of uniform high quality from tube to tube and shipment to shipment. Careful quality control through every production step assures you of uniformity every time.

To help you choose the tube that gives you the best life/cost ratio, call on our Technical Staff now. For further information on high temperature tubing, write or wire The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

**YEARS AHEAD—THROUGH EXPERIENCE AND RESEARCH**

*Specialists in alloy steel—including hot rolled and cold finished alloy steel bars—a complete range of stainless, graphitic and standard tool analyses—and alloy and stainless seamless steel tubing*

# This is Why the Nash is the Most Simple Compressor

# *It's the Nash!*

There are no mechanical complications in a Nash Compressor. A single moving element, a round rotor, with shrouded blades, forming a series of buckets, revolves freely in an elliptical casing containing any low viscosity liquid. This liquid, carried with the rotor, follows the elliptical contour of the casing.

The moving liquid therefore recedes from the rotor buckets at the wide part of the ellipse, permitting the buckets to fill with gas from the stationary Inlet Ports. As the casing narrows, the liquid is forced back into the rotor buckets, compressing the gas, and delivering it through the fixed Outlet Ports.

Nash Compressors produce 75 lbs. pressure in a single stage, with capacities to 6 million cu. ft. per day in a single structure. Since compression is secured by an entirely different principle, gas pumping problems difficult with ordinary pumps are often handled easily in a Nash.

Nash simplicity means low maintenance cost, with original pump performance constant over long periods. Data on these pumps sent immediately on request.

**No internal wearing parts.**

**No valves, pistons, or vanes.**

**No internal lubrication.**

**Low maintenance cost.**

**Saves floor space.**

**Desired delivery temperature automatically maintained.**

**Slugs of liquid entering pump will do no harm.**

**75 pounds in a single stage.**

**NASH ENGINEERING COMPANY**

**322 WILSON, SO. NORWALK, CONN.**

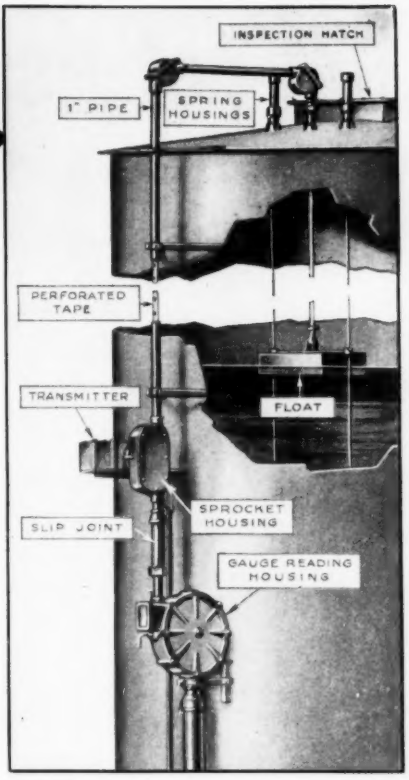
# THE AMERICAN WAY

- *Greater Convenience*
- *Maximum Safety*
- *Consistent Accuracy*
- *Economical Operation*

By pressing a button of the double Selsyn selective receiver in the control room, the operator can tell instantly the gallonage in any given tank, and can follow the filling and draining of storage tanks to cars or barges.

At the docks is another explosion-proof receiver, where, by merely pressing a button, the operator can tell instantly the gallonage which has been pumped into a storage tank, or the amount which has been withdrawn. Such close control of operations prevents waste of product, damage to tanks, and permits accurate timing of loading and unloading operations.

Photos by courtesy of Standard Oil Company (Indiana).

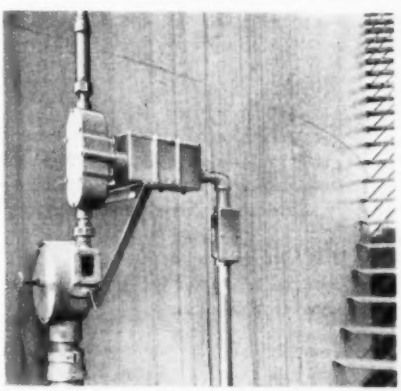



The picture above shows the component parts of the S. & J. Remote Reading Automatic Tank Gauge as installed at each storage tank. In addition to the automatic reading sent by the transmitter to the receiving station, another reading can be taken at the tank at eye level from the tape in the gauge housing.

To do a given job quickly, accurately, and safely—that's the American way of mass production which brings the good things of life within the reach of all the people. American industry does not send a workman to do a hazardous job, like gauging a petroleum storage tank manually, if the job can be done instantly and safely by merely pressing a button. Study the pictures reproduced here and see how a great American oil company uses S. & J. Remote Reading Automatic Tank Gauges to take inventory and to follow the filling and unloading of their storage tanks. Multiply the economy obtained here by a thousand other operations handled equally efficiently, and you will understand why every AMERICAN workman can buy gasoline cheaper than it is sold in any other country on earth.

**SHAND & JURS CO.**
BERKELEY, CALIFORNIA

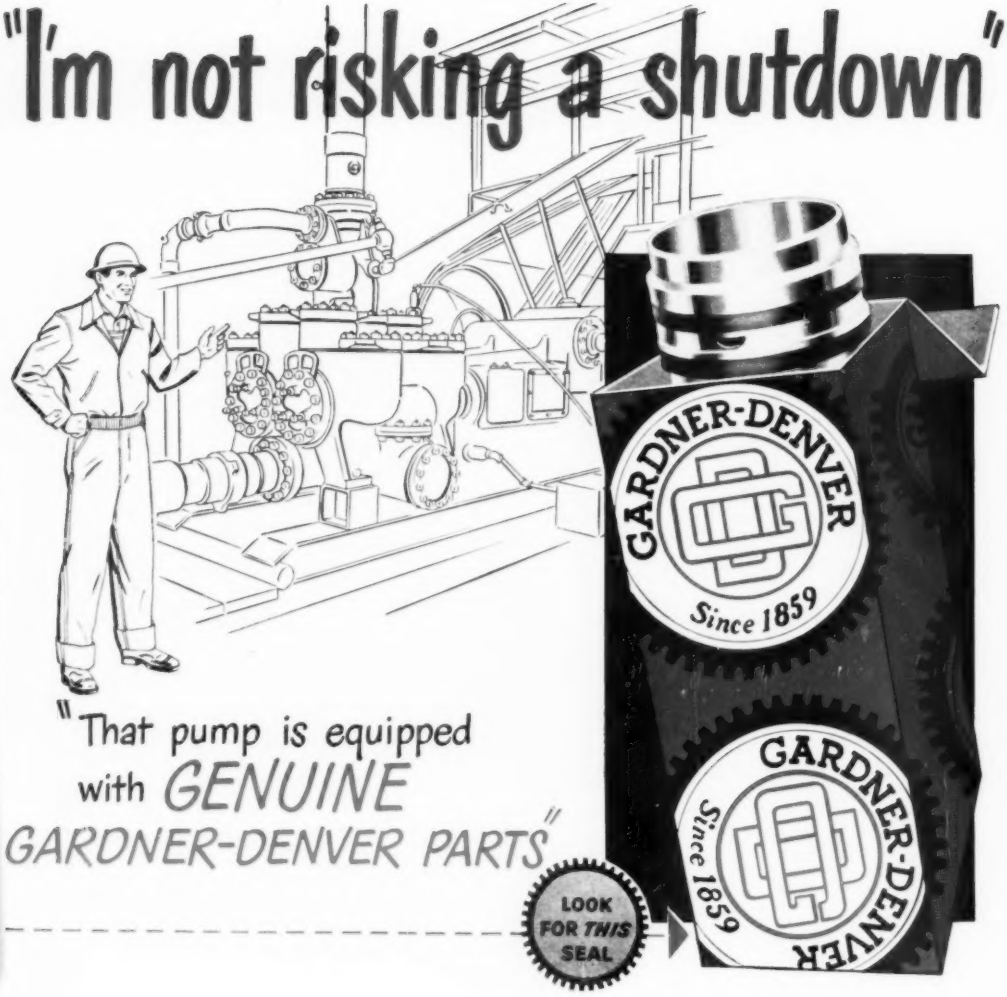
NEW YORK CHICAGO HOUSTON
LOS ANGELES SEATTLE



Close-up view of the transmitter as installed at the tank by Standard Oil Company (Indiana).

**SHAND & JURS**

# "I'm not risking a shutdown"




"That pump is equipped with *GENUINE GARDNER-DENVER PARTS*"

LOOK FOR *THIS* SEAL

Yes, a Gardner-Denver Slush Pump fitted with *genuine* Gardner-Denver liners, valves, rods and pistons is your best insurance against costly shutdowns. That's because:

**only** Gardner-Denver parts are engineered especially to match the high quality of Gardner-Denver Slush Pumps.

**only** Gardner-Denver has the authoritative knowledge to meet the specifications for which these pumps were designed.

**only** Gardner-Denver has a vital interest in helping you maintain your Gardner-Denver Slush Pumps at peak efficiency.

*Gardner-Denver Trained Service Men Are Readily Available to Assist in the Installation of Gardner-Denver Parts*

GARDNER-DENVER *Since 1859*

Gardner-Denver Company, Quincy, Illinois
*In Canada:* Gardner-Denver Company (Canada) Ltd., Toronto, Ontario

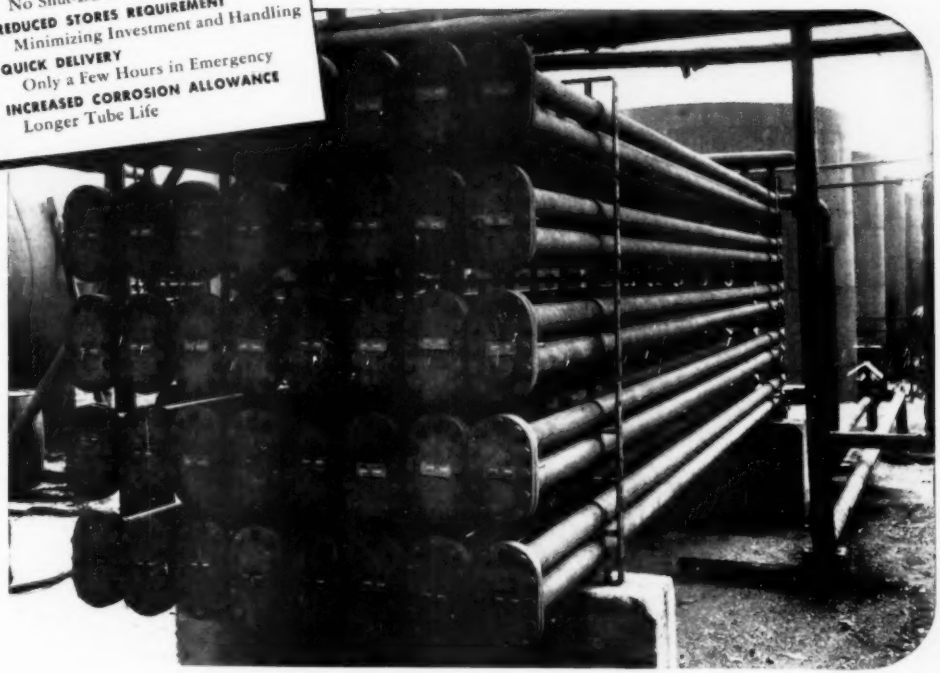
Dallas • Houston • Tulsa • St. Louis • Los Angeles • San Francisco
New York • Chicago • Pittsburgh • Denver • New Orleans
Continental Supply Co., Continental Bldg., Dallas, Texas
Export Division: 30 Rockefeller Plaza, New York, N. Y.
Republic Supply Co. (of Calif.), 2600 S. Eastland Ave., Los Angeles, Calif.

**BROWN FINTUBE'S** *advantages*

**EXTREME FLEXIBILITY**
Easily Adapted to Changes in Duty
**NO OBSOLESCENCE**
Avoiding Waste and Expense
**FLANGED HEAD END ASSEMBLY**
Eliminating Ground Joint Seals
**EASY MAINTENANCE**
Using Only Common Tools
**CONTINUOUS OPERATION**
No Shut-Downs For Cleaning
**REDUCED STORES REQUIREMENT**
Minimizing Investment and Handling
**QUICK DELIVERY**
Only a Few Hours in Emergency
**INCREASED CORROSION ALLOWANCE**
Longer Tube Life

# no obsolescence

## Brown Fintube Sectional Construction Avoids Needless Waste and Expense



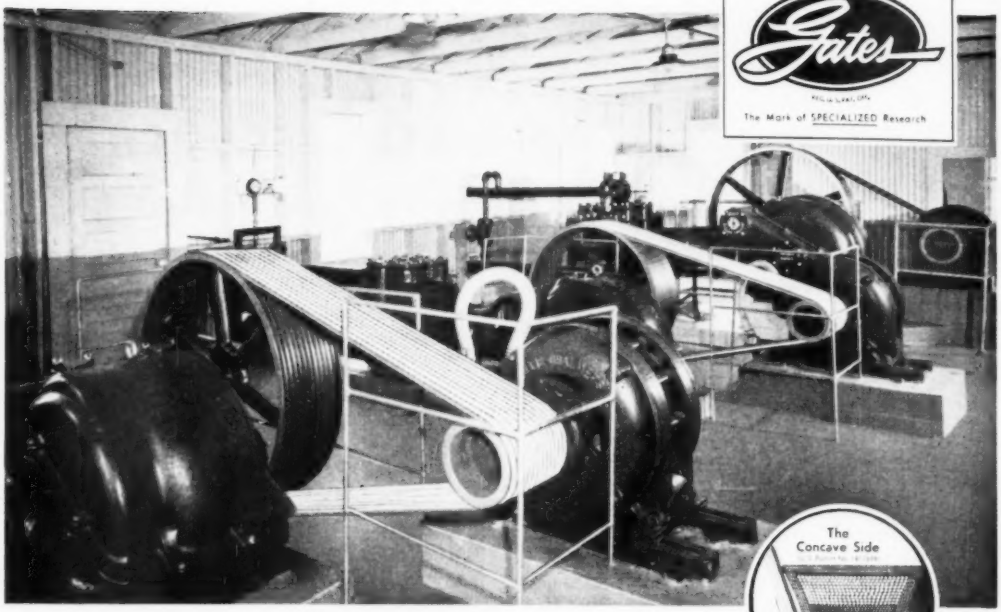
● Brown's interchangeability of parts, exacting design and precision manufacture has "licked" obsolescence.

The sections can be used in one exchanger after another — on different duties — on different products. A bank can even be broken up and the sections shipped to two or more plants, miles apart, assembled and reused. Sections not in use serve as "stores" for other sections on stream. They are *never obsoleted* by changes in duty or plant re-arrangements. You can use, and reuse them, until they are completely worn out.

For the utmost in *efficiency* and *economy*, install Brown's proven, welded fintube heat exchangers throughout your plant. Estimates and quotations furnished promptly. *Write for Bulletin No. 481.*

**THE BROWN FINTUBE CO.**
ELYRIA, OHIO

**SECTIONAL HAIRPIN HEAT EXCHANGERS**




The Gates Vulco Rope Drives in this clean looking pumping station are setting some real service records. When this picture was taken, the operators reported that some of these Gates Vulco Rope Drives had been on the job for nine years, operating 12 hours a day.

# Two Distinct *Savings* in *V-Belt Costs* Are *Yours* with Gates Vulco Ropes

A simple test that takes less than two minutes will save you many dollars in V-Belt costs. Here it is—

Have someone bend a V-Belt exactly as it bends in going around its pulley. As it bends, grip its sides with your fingers. You will *feel* those sides *change shape*. In a straight-sided V-Belt, the sides become *convex* as the belt bends. And note how the sides *bulge out*. (Figures 1 and 1A)

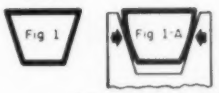
Now try the same test with a V-Belt that is built with the concave side. You will feel a change in shape—but a *different result!* The sides do not become *convex*. Instead, they become perfectly straight. *The bent belt now has a shape that exactly fits its sheave groove*—as shown in Figures 2 and 2A.

Two distinct savings result. *First*—There is no side-bulge to cause uneven wear. The sides press *evenly* against the V pulley and therefore wear *uniformly*—resulting in *longer life!* Second—The *full width* of the sidewall grips the pulley—thus carrying heavier loads without slippage—and this *saves belts* and also saves *power!*

*When you buy V-Belts, be sure you get the V-Belt with the Concave Sides... the Gates Vulco Rope!*

**What Happens When a V-Belt Bends**

Straight-Sided V-Belt




How Straight-Sided V-Belt Bulges in Sheave-Groove.

Gates Vulco Rope with Concave Side.

No Side Bulge. Precise Fit in Sheave Groove.

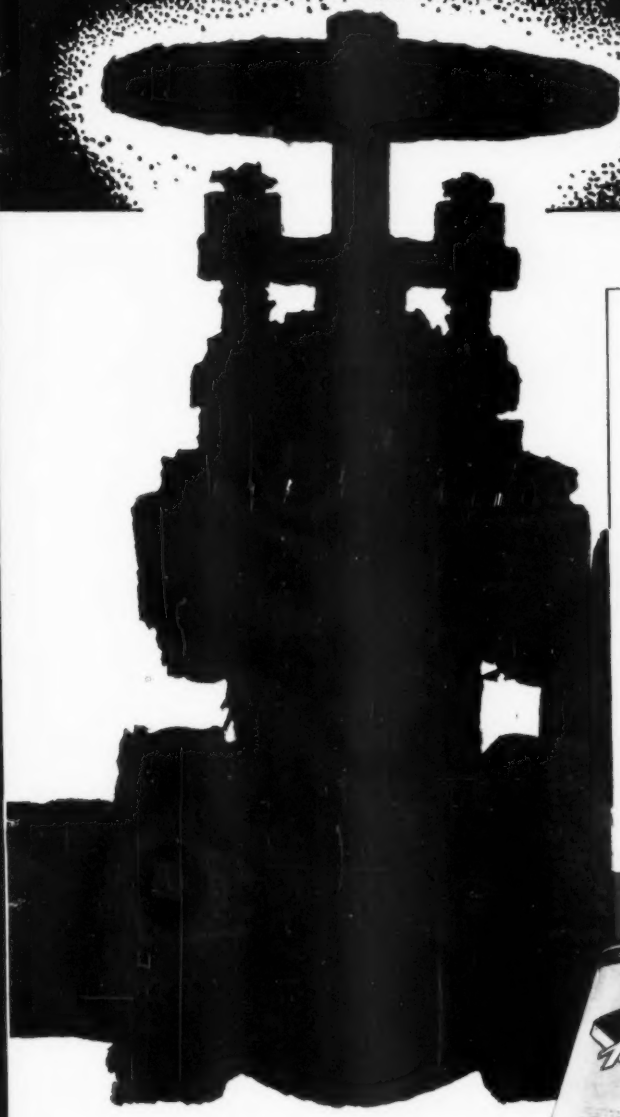
C S. 501

THE GATES RUBBER COMPANY
DENVER, U.S.A.
The World's Largest Makers of V-Belts

GATES VULCO ROPE DRIVES
Engineering Offices and Jobber Stocks IN ALL INDUSTRIAL CENTERS of the U. S. and 71 Foreign Countries

# PROTECT or PAY

## You have no other choice!



Corrosion costs industry over $6,000,000,000 annually. No business escapes its effects. Attacks by acids, alkalis, salts, gases and atmospheric conditions cause untold damage that often is overlooked until too late.

*Don't risk needless waste.* Most conventional coatings fail when corrosion threatens. That's why Amercoat is designed to give *extra protection* against surface failure. Highly resistant to a wide variety of chemicals, brines, fumes, weathering and abrasion, it is available in a number of formulas, *each designed to meet specific conditions.*

Corrosion ruined this valve. Amercoat protection would have multiplied its useful life many times over. Be sure your plant and equipment are safe from corrosion damage. Protect with Amercoat.

**AMERCOAT CORPORATION**

A Division of

AMERICAN PIPE AND CONSTRUCTION CO.

4809 Firestone Blvd., South Gate, Calif.

Check danger points like this in your plant—

Piping • Machinery
Walls and Ceilings
Fixtures • Tanks
Floors • Conveyors
Laboratory Equipment
and all other areas exposed to agents of corrosion or contamination.

FOLLOW THE LINE OF *most* RESISTANCE

# AO's Twin Cartridge RESPIRATOR

## For Organic Vapors, Gases, Dusts...

## Gives Double the Protection!

*Outstanding* . . . for the complete protection it provides and for the utter simplicity of its conversion into any of 7 types of respirators with one basic face piece. If you haven't as yet seen the NEW AO R5000 with new *interchangeable* cartridges and disc filter, be sure to ask your nearest AO Safety Products Representative for a demonstration of this highly serviceable equipment!

**QUICK FACTS — New Threaded Cartridges** — Wider, for lower breathing resistance. To interchange, merely unscrew one cartridge and screw in another for gas-tight seal.

**New Filter Retainer Assembly** — Takes either chemical cartridges or flat disc of chemically treated felt.

**New Face Piece** — Non-leaking, snug fitting, comfortable, of durable, pure rubber.

**Increased Visual Area** — New slender cartridge design and lower location of cartridge afford wider field of vision.

**New Flexible Fitting Brace** — Face piece adapts to features of wearer by slightest hand pressure on brace for perfect fit. Headband pressure cannot pull pliable rubber face piece out of shape.

**New Inhalation and Drain Valve Designs** — Provide positive action, thorough drainage and no interference by clothes or face.

**New Inventory Economy** — "7-respirators-in-1" permit standardization, hence smaller inventories. Double length headband permits "parking" of respirator around neck when not in use. Auxiliary filters available which extend cartridge filter life.

American Optical COMPANY
SAFETY PRODUCTS DIVISION

Southbridge, Massachusetts • Branches in Principal Cities

# *Precision*

## IN BIG THINGS TOO

*Stainless steel bubble trays and caps being installed in stainless clad fractionating tower.*

Accurately made to close tolerances
Uniform rib width
Ample lap widths
No cracks on outside corners
No wrinkles on inside corners

# No Wrinkles... No Cracks... No Blowouts!

## no place for leaks in THIS heat exchanger gasket

TAKE A CLOSE LOOK at the Goetze heat exchanger gasket shown above. Note the absence of cracks on outside corners . . . of wrinkles on inside corners . . . the uniform width of the ribs . . . the generous overlap of the metal jacket.

Attention to such important details is typical of the kind of care that goes into the forming of these custom-made gaskets. It is the secret of their dependable service—why you can count on them to stay on the job indefinitely without leaks or blowouts. And it's the reason they pay off in terms of less down-time and in the savings that result when gaskets *don't* have to be replaced at frequent intervals.

• • •

You can have Goetze heat exchanger gaskets made in any size or shape. Estimates and recommendations will be furnished promptly on request. Write Johns-Manville, Box 290, New York 16, N. Y.

**Johns-Manville *Goetze* Gaskets**

# LUNKENHEIMER VALVES

## ...proved in petroleum service!

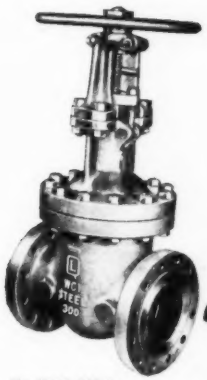


Fig. 1938, 300 lb. Alloy Steel Gate

Fig. 1640, King Clip Gate

Fig. 1430, Iron Body Gate

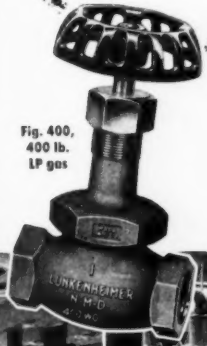


Fig. 400, 400 lb. LP gas

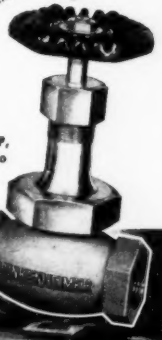


Fig. 16P, Renewo

FROM the oil fields, right through practically every process, oil men know they can depend upon all Lunkenheimer Valves for trouble-free, low-cost service. Engineers and maintenance men rely on valves, lubricators, air devices and other products bearing the name Lunkenheimer . . . recognized the world over as positive assurance of efficient performance, long service life and low maintenance cost.

ESTABLISHED 1862

THE LUNKENHEIMER CO.

"QUALITY"

CINCINNATI 14, OHIO, U.S.A.

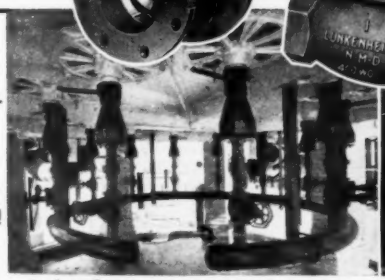
NEW YORK 13 • CHICAGO 6 • BOSTON 10 • PHILADELPHIA 34

EXPORT DEPT. CINCINNATI 14, OHIO, U.S.A.

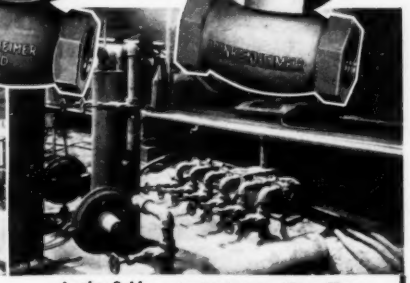
. . Leadership thru Achievement

LET THE LUNKENHEIMER DISTRIBUTOR "TAKE OVER" YOUR INVENTORY PROBLEMS!

There are Lunkenheimer Distributors in every petroleum producing and refining center. Their stocks help you reduce inventory overhead and obsolescence.



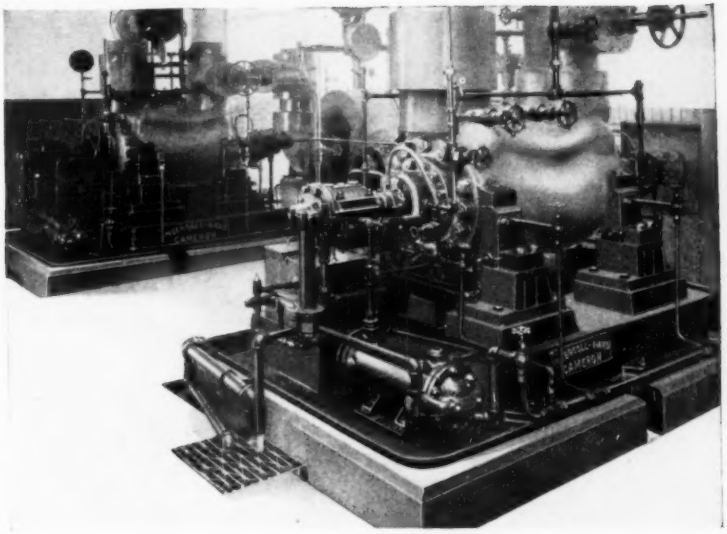
*At the refinery* . . . Lunkenheimer Bronze Valves control the burners on a petro-chem heater in a Texas gasoline plant.



*In the field* . . . Lunkenheimer King Clip Valves on a fuel manifold to drilling engine on a typical Oklahoma drilling rig.

FIRST CHOICE
Thermoid
Powerflex Rotary Hose
Tube—Synthetic rubber . . . abrasion and oil resistant . . . free circulation and long life assured.
Reinforcement—Steel cables and pre-stretched fabric for the greatest strength and flexibility.
Cover—Special vulcanized compound resists aging and abrasion.
Couplings—Streamlined steel . . . full flow built-in and anchored securely for the life of the hose.
It will pay you to Specify Thermoid!
EVERY LENGTH PRE-TESTED TO 5000 PSI BEFORE SHIPMENT
Also
TRIOFLEX
Slim-Hole Rotary Hose
for Portable Rigs, Seismograph and Workover Service. Tested to 2000 psi before shipment.
SEE OUR CATALOG IN THE COMPOSITE CATALOG
Thermoid Quality Oil Field Products: Oil Country Flat Belting • Wire Line Turn Backs • No-Wip
Line Savers • Stuffing Box Rings • All types of Hose • Molded Specialties • Powerflex Rotary Hose •
Mud-Flat Slush Pump Hose • Flexible Discharge Units • Brake Blocks • F. H. P. and Multiple V-Belts
Thermoid Company
Western Offices and Factory • Nephi, Utah, U.S.A.
Main Offices and Factory • Trenton, N. J., U. S. A.
Industrial Rubber Products • Friction Materials • Oil Field Products

# How much time do your refinery pumps save?



These two I-R hot-oil pumps at the Magnolia Petroleum Company's Beaumont refinery in Texas saved plenty of time—*maintenance time*. One pump operated over 12 years, the other 10 years, before being opened for inspection. And then only minor repairs were necessary to put them back on stream.

The record of these two pumps, both of which, since 1936, have been handling oil at 750°F against a high discharge pressure definitely proves the *"less time out for maintenance"* feature of Ingersoll-Rand pumps . . . a feature that helps to reduce over-all production costs. Under today's conditions, this feature is more important than ever.

It's a good idea to confer with an I-R engineer before buying a pump for *any* refinery application. He'll be glad to point out the features of I-R pumps that mean year after year dependability . . . *and with the least amount of time out for maintenance.*

**Ingersoll-Rand**

**Cameron Pump Division** 405-10
**11 Broadway, New York 4, N. Y.**

COMPRESSORS • AIR TOOLS • JACKHAMERS • CONDENSERS • BLOWERS • PUMPS

# *Piping Hot*

## AT 10° ABOVE ZERO

## –Pipe takes on its Protective Overcoat

On the line, welded joints are coated with NO-OX-ID XX - heated in a portable kettle and ragged on. No. 7 NO-OX-IDized Wrapper is applied and sealed with NO-OX-ID XX.

BECAUSE the wide range of NO-OX-ID consistencies provides excellent corrosion protection regardless of the weather, this 24" natural gas line was coated and laid in near-zero temperatures. Primed and coated with hot applications of NO-OX-IDs, and then NO-OX-IDized Wrappers, this line, from past performance records, is assured of a minimum of ten years' service, without leaks or replacements.

NO-OX-IDs are versatile protective coatings for hot or cold climates, for hot or cold applications, easy to use under any conditions.

Completed section, with welds protected with NO-OX-ID, being laid. Outer wrapper is kraft paper for protection of coating in transit and during stringing.

NO-OX-ID IRON-OX RUST

Dearborn
Reg U S Pat Off

THE LEADER IN RUST PREVENTIVES AND BOILER WATER TREATMENT

"Piping Hot," a new 16mm. sound movie in color on the use of hot applied NO-OX-IDs by stationary machines is available to companies, engineering clubs, or technical societies. Write for booking.

**DEARBORN CHEMICAL COMPANY**

310 S. Michigan Ave., Chicago 4 • 807-15 Mateo St., Los Angeles
205 E. 42nd St., New York • 2454 Dundas St., West, Toronto

# Another Pittsburgh First!

## Gives You Casing Tested in Tension up to 10,000 PSI to Reduce "Leakers". Saves Time and money in the Field

Again Pittsburgh Steel Company is the first to provide a method of adequately testing casing for deep wells to give you fewer leakers and long service with safety. This new development will save you time and money in the field. It is made possible with our new Hydrostatic Testing equipment capable of testing casing *in tension* up to 10,000 PSI.

The new Hydrostatic *Tension* Testing Method is the result of intensive development work on similar equipment first introduced by Pittsburgh Steel in 1939. It was capable of testing at pressures up to 3000 PSI and through years of use proved to be the best method for testing casing ever developed. With the new, heavier equipment Pittsburgh Steel is the only company that can meet your needs for extremely high pressure hydrostatic testing in *tension*. By this method the coupling end of the casing joint is sealed with a threaded plug which is mounted in a floating carriage. The pipe is filled with water and as the pressure is built up to the desired PSI, the carriage is free to move, thus avoiding any compression or column stress on the pipe. This permits the internal pressure to exert tension through the body of the pipe as well as on the threads, thereby closely approaching operating conditions in the well.

It will pay you to investigate the possibility of having your Pittsburgh Seamless Casing Hydrostatically tested *in tension*. Ask your Pittsburgh field engineer for full particulars or write for information to Pittsburgh Steel Company, Department OG, Grant Building, Pittsburgh 30, Pa.

**Pittsburgh Steel Company**

# OIC UNION BONNET BRONZE GATE VALVE

## *GIVES YOU MONEY-SAVING FEATURES YOU'LL WELCOME*

This series of OIC valves (Figure nos. 7200, 7202 and 7208) is rated for working pressures of 200 pounds steam at 550° F. — 400 pounds water, oil and gas, non-shock. Union bonnet screwed-end type. Solid wedge rising stem, double-disc rising stem and solid wedge non-rising stem designs. Tapered seats and wedges of OIC copper nickel alloy. You'll find this new valve a money-saver on water, oil, gas, steam or any other service where bronze gate valves are used.

### LONGER LIFE—LOWER COST

Scientifically designed, constructed of highest quality materials, accurately machined and thoroughly tested for trouble-free operation.

### EASILY SERVICED—LOWER MAINTENANCE

Easy to dismantle and reassemble. Quick inspection and servicing. Easy repacking.

### EASIER OPERATION—SAVES TIME

Perfect seating without binding or undue wear. Straight-through flow. Minimum pressure drop.

### STRONGER—GREATER SAFETY

Ample wall thicknesses. No dangerous stress concentrations. Leak-proof joints.

OIC
PACE SETTER IN VALVES

0-949-14

### SPECIAL INTRODUCTORY OFFER

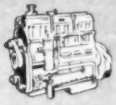
If you'd like to check this OIC bronze 200 lb. union bonnet gate valve, simply send us the size and we'll deliver you a sample on memo billing. Inspect it, analyze it, take it apart, test it. At the end of 30 days, if you're not convinced of its superiority over any comparable valve you've ever used, return it for full credit.

**THE OHIO INJECTOR CO.**
180 S. Lyman St. WADSWORTH, OHIO

**BRONZE • IRON • CAST STEEL • FORGED STEEL**

# Aeroquip

RAILROADS



ENGINES

ROAD EQUIPMENT

HEAVY HIGHWAY EQUIPMENT

MARINE EQUIPMENT

BUSES

OIL FIELDS

## FLEXIBLE HOSE LINES with DETACHABLE FITTINGS

Easily assembled in your own shop.

Operating temperatures from —40° to +275° F.

For use with hydraulic fluids, lubricating oils, water, air and many other fluids.

DEALERS AND DISTRIBUTORS WANTED

## SELF-SEALING COUPLINGS

Allow separation and reconnection of fluid-carrying lines without loss of fluids or inclusion of air. 1 coupling takes the place of 2 hand-operated valves.

*Aeroquip for Better Performance, Maintenance and Service*

## AEROQUIP CORPORATION

JACKSON, MICHIGAN

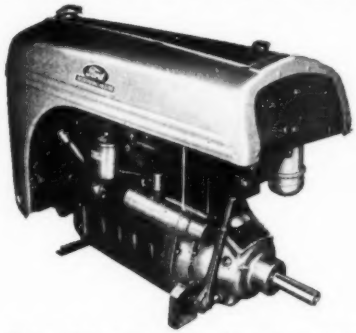
SALES OFFICES AND WAREHOUSES: 1053 NO. HOLLYWOOD WAY, BURBANK, CALIF. · 1215 SO. EAST GRAND AVE., PORTLAND 14, ORE. · 2912 N. E. 28TH ST., FORT WORTH 11, TEXAS · 72-74 STAFFORD STREET, TORONTO, CANADA

SALES OFFICES: 303 WAREHAM BLDG., HAGERSTOWN, MD. · 1419 2ND AVE., SO., MINNEAPOLIS 4, MINN.

AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U. S. A. AND ABROAD

# IT'S HERE...

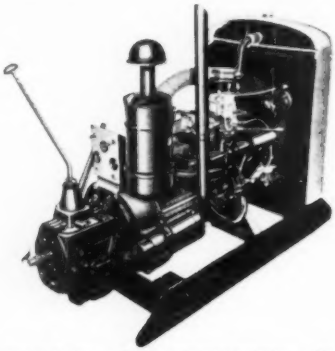
## NEW Ford "120" POWER UNIT



Removable dry cylinder liners . . . 3-ring pistons, chrome top ring . . . Moly-chrome valve seat inserts . . . Circulating cooling system with thermostat . . . Replaceable thin shell main and connecting rod bearings . . . Counterbalanced crankshaft . . . Magneto or battery ignition . . . Oil filter . . . Heavy duty oil bath air cleaner.

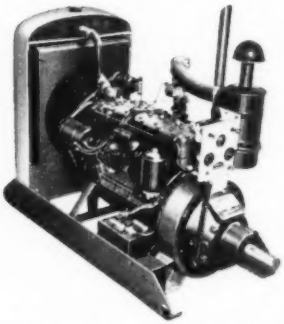
# Complete

## NEW Ford "226" POWER UNIT



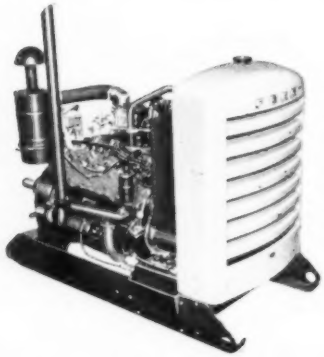
Pad mounted oil filter . . . Full length water jacketing . . . Recirculating pressure cooling system with thermostat . . . Counterbalanced crankshaft . . . Heavy duty, replaceable thin shell copper lead bearings . . . High lift camshaft . . . Balanced carburetion (downdraft or updraft) . . . Heavy duty oil bath air cleaner.

## NEW Ford "254" POWER UNIT



Pad mounted oil filter . . . Recirculating pressure cooling system with thermostat . . . Autothermic pistons with chrome top compression ring . . . High lift camshaft . . . Hard faced cobalt exhaust valve (free type valves) . . . Counterbalanced crankshaft . . . Heavy duty, replaceable thin shell copper lead bearings . . . Balanced carburetion (downdraft or updraft) . . . Air cleaner.

## NEW Ford "239" POWER UNIT



Dual water pumps . . . Full length water jacketing *plus* . . . Recirculating pressure cooling system with thermostat . . . Fully counterbalanced crankshaft . . . Replaceable thin shell bearings . . . Moly-chrome valve seat inserts . . . Dual downdraft carburetion . . . Oil filter and air cleaner.

**RIGHT** for Centrifugal Pumps . . . Arc Welders . . . Air Compressors . . . Cranes and Hoists . . . Winches . . . Railway Cars . . . Generator Sets . . . Crane Loaders . . . Feed Grinders . . . Mechanical Shovels . . . Portable Sawmills . . . Portable Well Drillers . . . Farm Combines . . . Street Flushers . . . Concrete Mixers . . . Portable Grain Mills . . . Irrigation Equipment . . . Log Yarders and Loaders—and many other applications.

## Specifications of Ford Industrial Engine Power Units

| Model | Cylinders | Bore and Stroke | Displ. cu. in. | Dyn. B.H.P. | Max. Torque | Equipment Available |
|---|---|---|---|---|---|---|
| 120 | 4 | 3⅛ x 3¾ | 120 | 38 @ 2400 | 92#' @ 1600 | Clutch; SAE #5 housing; power take-off; Ford housing; 3- or 4-speed transmission; governor. (Available as closed type power unit or engine assembly.) |
| 226 | 6 | 3.3 x 4.4 | 226 | 80 @ 2400 | 182#' @ 1200 | Clutch; SAE #3 or #4 housing; power take-off; Ford housing; 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.) |
| 239 | V-8 | 3⅛ x 3¾ | 239 | 85 @ 2400 | 187#' @ 1600 | Clutch; SAE #3 or #4 housing; power take-off; Ford housing with 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.) |
| 254 | 6 | 3.5 x 4.4 | 254 | 95 @ 2400 | 212#' @ 1200 | Clutch; SAE #3 or #4 housing; power take-off; Ford housing; 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.) |
| 337 | V-8 | 3½ x 4⅜ | 337 | 117 @ 2400 | 257#' @ 1600 | Clutch; 5-speed direct-or-fifth transmission; overdrive transmission, direct drive power take-off. (Available as closed or open type power unit, or engine assembly.) |

**FORD**

**Industrial Engine Power Units**

**ARE RIGHT 3 WAYS**

**for your job!**

1 **RIGHT POWER**—five great models in wide variety of units. Each one ready to run!

2 **RIGHT FEATURES**—all the latest advancements of Ford's famed progressive engineering.

3 **RIGHT SERVICE**—as near as your nearest Ford Dealer, clear around the world.

# Line of NEW

Ford INDUSTRIAL ENGINE

# POWER UNITS!

**NEW Ford "337" POWER UNIT**

Drop forged fully counterbalanced crankshaft, hardened journals . . . Heavy duty, replaceable thin shell copper lead bearings . . . Hard faced cobalt exhaust valves (free type valves) . . . Autothermic pistons, chrome top ring . . . Dual centrifugal water pumps . . . Full length water jackets . . . Recirculating pressure cooling system with thermostat . . . Dual downdraft carburetion . . . Oil filter and air cleaner.

YOUR JOB IS WELL-POWERED WHERE IT'S FORD-POWERED

● Ford Industrial Power Units are now available in five great models . . . four, six and V-type eight cylinder . . . 120 to 337 cu. in. displacement. *COMPLETE* with radiator . . . instrument panel and S.A.E. or Ford type housings. Foot or skid mounted. Closed and open types. Made throughout to Ford's famed hi-precision manufacturing standards. Completely tested and *READY TO RUN!*

Ford Dealers, Ford District Sales Offices and the Ford Industrial Engine Department are at your service in developing engineering recommendations showing how Ford Industrial Power Units can be most effectively applied to your job. *Mail coupon below for Ford Industrial Power Unit Folder.*

**For Special Literature on Ford Industrial Power Units, use this coupon . . .**

**Industrial Engine Department**

**FORD MOTOR COMPANY**

**DEARBORN, MICHIGAN**

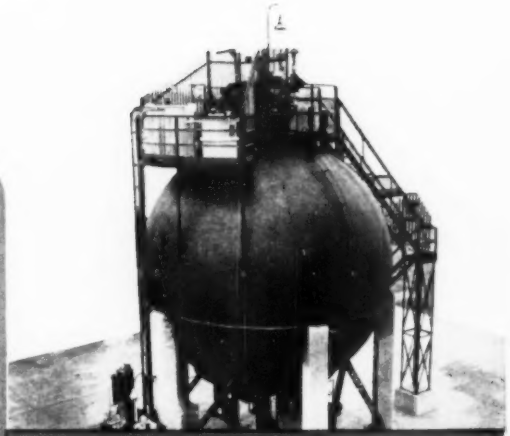
Send me comprehensive literature about the new Ford Industrial Power Units. Address: **Industrial Engine Dept., Ford Motor Co., Dearborn, Mich.**

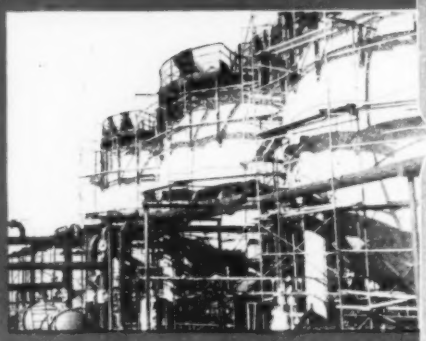
NAME _____ *(Please print)*

STREET _____

CITY _____ STATE _____

***These 3 facts are worthy of serious consideration by any refiner who is planning on increasing the efficiency of his desalting procedure.***





1 More **PETRECO** Electric Desalters are now in use than ever before.

2 More **PETRECO** Electric Desalters are under construction than ever before.

3 Only **PETRECO** offers complete desalting service personnel and facilities.

**PETROLEUM RECTIFYING COMPANY**

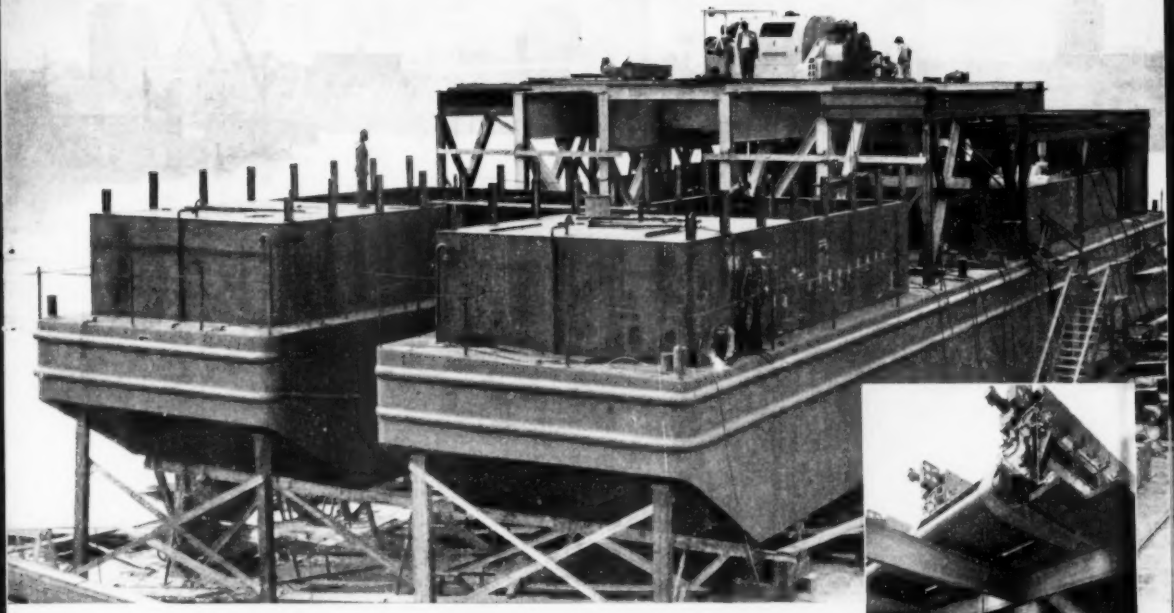
5121 South Wayside Drive, Houston 1, Texas
648 Edison Building, Toledo 4, Ohio
530 West Sixth Street, Los Angeles 14, Calif

# PETRECO

SPECIALIZED *Electric* PETROLEUM PROCESSES { DESALTING / DEHYDRATING

PR-49-5

An all-Bethlehem drilling barge under construction. Draw works on main deck is an MC-950 with 15,000-ft rating.



Slush pumps on this job are powerful Bethlehem G-600's.

# Let Bethlehem build it ALL

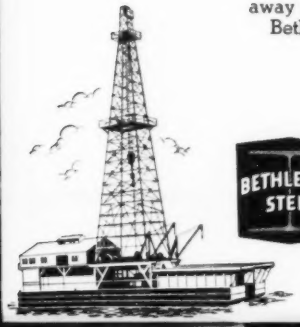
## ...from barge bottom to gin pole

In ordering submersible, shallow-water drilling equipment, the customer can now place all responsibility—every single detail—in the hands of one experienced builder, thus relieving himself of countless worries, mix-ups, and complications.

The answer is a "turnkey" job completely built and equipped by Bethlehem, down to the last bolt and nut. At our Gulf Coast yards the barge is designed, engineered, fabricated; drilling equipment, furnished by Bethlehem Supply is installed as the barge work progresses. When the job is delivered, it is ready for immediate service; ready to be towed away to its first drilling assignment.

Bethlehem's organization has had wide, well-rounded experience in the design and construction of drill barges. And Bethlehem Supply has for years manufactured a nationally-known line of rotary-drilling equipment. This combined experience is unique, unduplicated anywhere else in the world.

When you place your order with Bethlehem, you centralize responsibility; gain the advantages of dealing with *one* company, instead of ten or twelve. You gain the services of a unified engineering staff; the services of a large, resourceful purchasing division. Your finished job will be right—and complete—from barge bottom to gin pole. For full details and a history of our experience in this work, we suggest you get in touch with us.



BETHLEHEM STEEL

**BETHLEHEM STEEL COMPANY**

*Shipbuilding Division*

GULF COAST YARDS: BEAUMONT, TEXAS

**BETHLEHEM SUPPLY COMPANY**

GENERAL OFFICES: 21 E. SECOND ST., TULSA, OKLA.

**Subsidiaries of Bethlehem Steel Corporation**

# New Fields . . . More Wells . . .

## Mack Trucks Help Find 'Em... Help Keep 'Em Flowing!

Two of the many Mack trucks, gasoline and diesel-powered, now operating in the Alberta oil fields.

● Dependable Mack trucks are top favorites in every phase of punishing oil field work. They've got that built-in "extra stamina" that makes the big difference when the going really gets tough. Powerful Thermodyne or Diesel engines! Mack's famed Balanced Bogie with the exclusive Power Divider on Mack six-wheelers! Husky frames of heat-treated alloy steel. Flexible rubber Shock Insulators! These and many other features are assurance of power and strength for the heaviest loads—traction and flotation for the most slippery mud or sand. Whether your hauling jobs take your trucks on or off the highway, you will find that Mack trucks have the capacity, power, strength and flexibility to put oil field equipment where you want it . . . when you need it . . . at lowest cost. See your nearest Mack branch or dealer for full information in terms of your particular operation.

**Built Like a Mack ...Outlasts them all**

Mack Trucks, Inc., Empire State Building, New York 1, New York. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N.Y. Factory branches and dealers in all principal cities for service and parts. In Canada, Mack Trucks of Canada, Limited.

7880

When the erection of a plant gets underway—most of the gains from efficient construction technique have already been won—or lost! Ultimate savings are largely set in the *planning* of the construction program—as to methods, schedules and labor requirements.

At Lummus, this planning is derived from unsurpassed 'round-the-world experience. Then, it is put into practice by a field staff to whom so-called "unpredictables" are old and familiar.

Sound technique, as Lummus applies it, means a sound night's sleep for those we serve who shoulder the responsibility.

designs and builds with

economy
fulfillment
resourcefulness
teamwork
**TECHNIQUE**
perspective

## TECHNIQUE— in planning

The full effect of detailed planning in advance of actual construction has been realized in foreign work where local facilities are at a minimum. It called for scheduled arrival of tools and materials, periodic estimates of manpower requirements and the preplanning of specific procedures for materials handling and heavy lifts. Economy in requirements for construction facilities, tools and equipment by preplanned re-use at various construction stages is one example. The selection of a supervisory staff with experience permitting effective reassignment as the job progresses is another.

## TECHNIQUE— on the job

What makes it possible to move a 150-ton derrick intact from one tower-erection location to another, as contrasted to disassembly and reassembly? Planning—plus practical experience of the field staff on the job! Lummus field personnel has served in some 15 foreign fields, as well as at home, and averages better than 10 years' Lummus experience.

## TECHNIQUE— as to costs

From an analysis of unit erection costs in which every man-hour is estimated in advance, Lummus lays the groundwork for continuing cost control. Periodic reports, detailing costs and work-progress, permit evaluation of all phases of the job from start to finish.


**THE LUMMUS COMPANY**
**420 Lexington Avenue, New York 17, N. Y.**

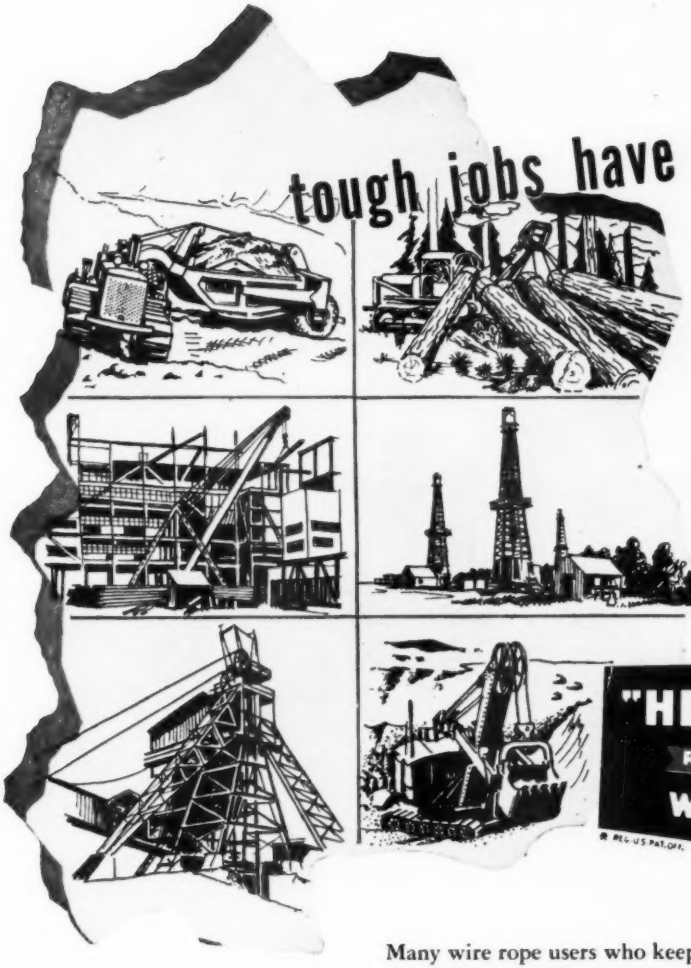
LUMMUS

**CHICAGO**—600 South Michigan Avenue, Chicago 5, Ill.
**HOUSTON**—Mellie Esperson Bldg., Houston 2, Texas

The Lummus Company, Ltd., 525 Oxford St., London, W-1, England

Société Française des Techniques Lummus
39 Rue Cambon, Paris 1er, France

Compañía Anónima Venezolana Lummus—Edificio "Las Gradillas"
Esquina Las Gradillas, Caracas, Venezuela



# tough jobs have long been the PROVING GROUNDS for "HERCULES" RED-STRAND WIRE ROPE

* REG. U.S. PAT. OFF.

Many wire rope users who keep an eye on their operating costs have proved by the accurate yardstick of performance that "HERCULES" (Red-Strand) Wire Rope provides longer wear . . . faster and more *continuous* work . . . increased profit.

Such results are never a matter of chance; definite policies involving materials, manufacturing methods, equipment and experience, insure them.

Made in Round Strand and Flattened Strand constructions, Preformed or Non-Preformed; there is a correct type for every purpose.

MADE ONLY BY

*We invite your inquiries.*

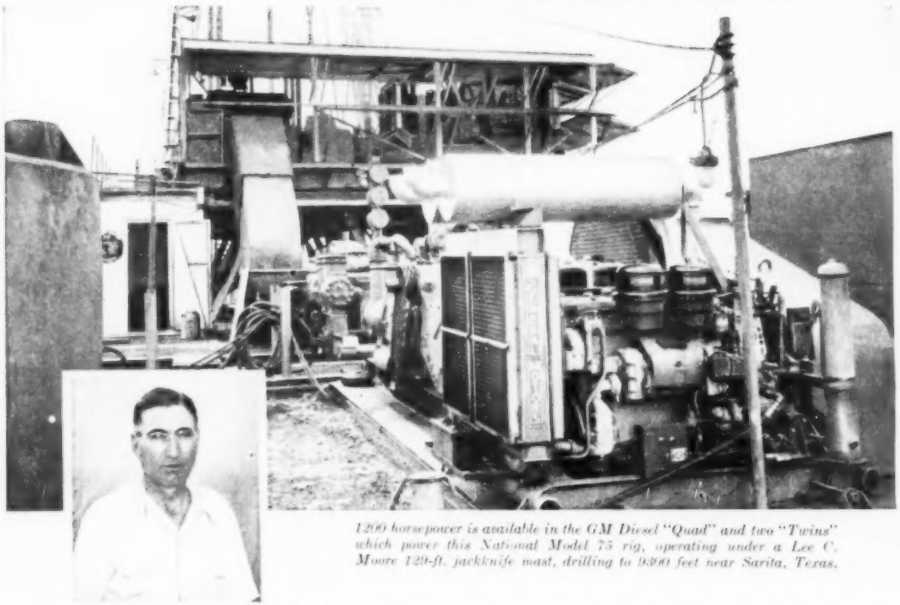
**A. LESCHEN & SONS ROPE CO.** 5909 KENNERLY AVENUE • ST. LOUIS 12, MISSOURI

ESTABLISHED 1857

New York 6 · Chicago 7 · Birmingham 6 · Houston 3 · Denver 2 · Los Angeles 21 · San Francisco 7 · Portland 9 · Seattle 4

# "This Rig has Everything"

**says Charles D. Bryant**
**Allen & Morris Drilling Co.**



*1200 horsepower is available in the GM Diesel "Quad" and two "Twins" which power this National Model 75 rig, operating under a Lee C. Moore 129-ft. jackknife mast, drilling to 9300 feet near Sarita, Texas.*

POWERFUL enough to go to 11,000 feet, yet economical enough to be used on 5000- to 6000-foot contracts, this unitized rig used by Allen & Morris Drilling Company, San Antonio, Texas, has everything it takes for fast, profitable drilling. Its power — a General Motors Diesel "Quad" and two "Twins."

Mr. Chas. D. Bryant, manager at Corpus Christi, tells us they can tear down, move a reasonable distance, rig up and spud in a new hole within 18 working hours.

That points up the feature of this flexible, dependable, 2-cycle Diesel power.

Here is plenty of power in fewer units that weigh less and take less space. That means lower-cost moves, quicker setups, faster round trips, more hole drilled in less time.

All this explains why so many drilling contractors have come to rely on General Motors Series 71 Diesels. You have everything to gain by investigating this modern power. Write or phone for complete details.

SEE OUR CATALOG IN THE COMPOSITE CATALOG

**DETROIT DIESEL ENGINE DIVISION**

SINGLE ENGINES... Up to 200 H.P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS... Up to 830 H.P.

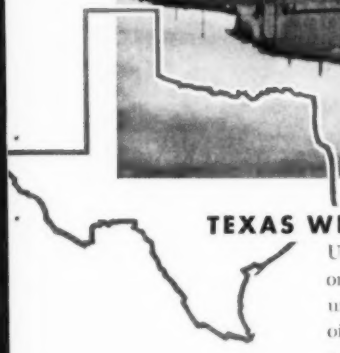
GENERAL MOTORS

GM GENERAL MOTORS DIESEL POWER

**DIESEL BRAWN WITHOUT THE BULK**

**GENERAL MOTORS CORP., DIESEL ENGINE SALES, PETROLEUM INDUSTRY, 1504 Philtower Bldg., TULSA 3, OKLAHOMA**

**CALIFORNIA:** Anderson O'Brien Co., LOS ANGELES 21; Lawless Brothers, BAKERSFIELD; West Coast & Engine Equipt. Co., BERKELEY. **ILLINOIS:** Western Machinery & Engine Co., CENTRALIA. **KANSAS:** Diesel Equipment Co., Inc., WICHITA; Scranton Machine & Supply Co., GREAT BEND. **LOUISIANA:** George Engine Co., NEW ORLEANS 18; United Tool & Valve Repair Co., SHREVEPORT. **MISSOURI:** Western Machinery & Engine Co., ST. LOUIS 10. **MONTANA:** Seitz Machinery Co., Inc., BILLINGS; Mountain Tractor Co., MISSOULA. **OKLAHOMA:** Diesel Power Co., OKLAHOMA CITY. **TEXAS:** Stewart & Stevenson Services, Inc., HOUSTON 11, McALLEN, DALLAS, CORPUS CHRISTI, WICHITA FALLS; Haynes Machinery Co., PLAINVIEW; Empire Machinery Co., ODESSA. **WYOMING:** Colorado Builders' Supply Co., CASPER.



**TEXAS WELLS,** too, reflect the overwhelming preference of oil country men everywhere for U·S·S National Seamless Drill Pipe, Casing and Tubing—a preference that is based on the consistently good results obtained with these superior seamless steel products under every conceivable drilling condition. For detailed information on U·S·S National oil country goods, write National Tube Company, Frick Building, Pittsburgh, Pennsylvania. Ask for Bulletin No. 15.

NATIONAL TUBE COMPANY, PITTSBURGH, PA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

WALLS WITHOUT WELDS

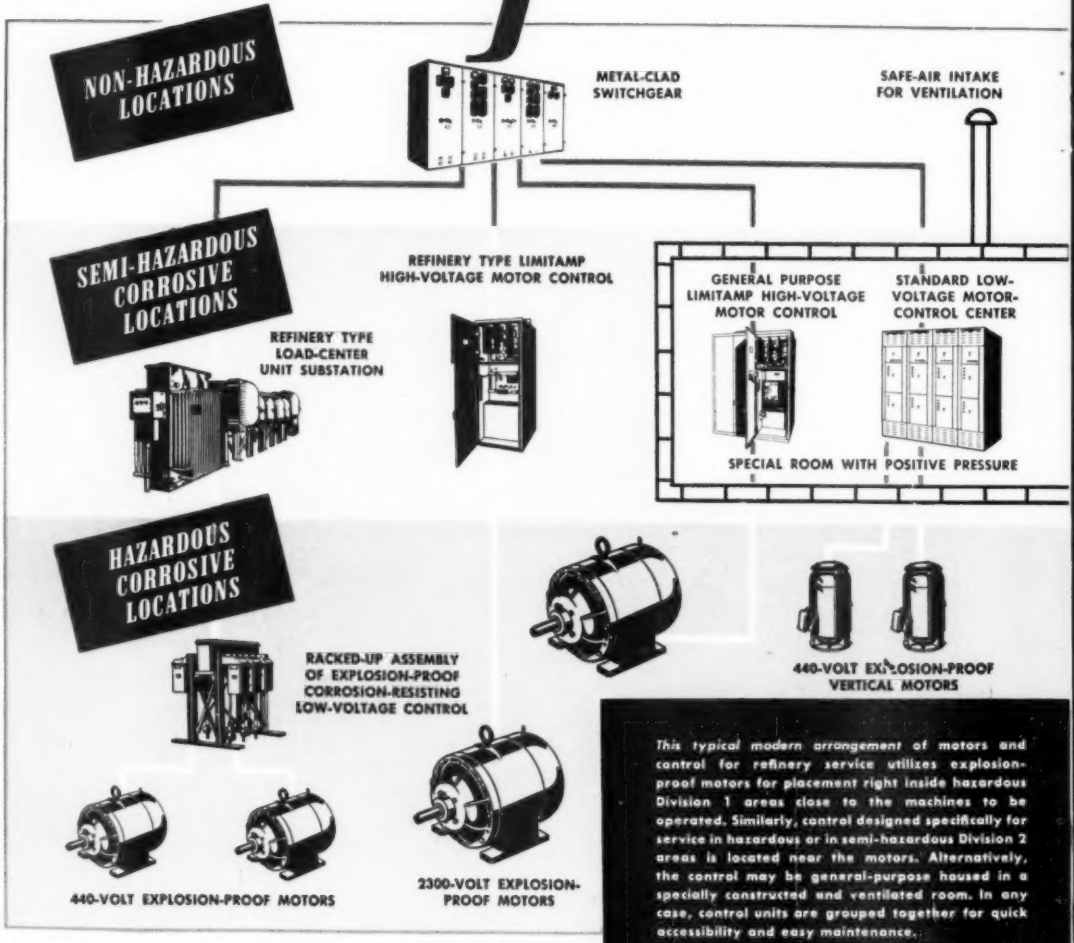
USS

# NATIONAL SEAMLESS

*drill pipe...casing...tubing*

UNITED STATES STEEL

# What's the trend in refinery electrification? } wider use of explosion-proof


NON-HAZARDOUS LOCATIONS
METAL-CLAD SWITCHGEAR
SAFE-AIR INTAKE FOR VENTILATION
SEMI-HAZARDOUS CORROSIVE LOCATIONS
REFINERY TYPE LIMITAMP HIGH-VOLTAGE MOTOR CONTROL
REFINERY TYPE LOAD-CENTER UNIT SUBSTATION
GENERAL PURPOSE LIMITAMP HIGH-VOLTAGE MOTOR CONTROL
STANDARD LOW-VOLTAGE MOTOR-CONTROL CENTER
SPECIAL ROOM WITH POSITIVE PRESSURE
HAZARDOUS CORROSIVE LOCATIONS
RACKED-UP ASSEMBLY OF EXPLOSION-PROOF CORROSION-RESISTING LOW-VOLTAGE CONTROL
440-VOLT EXPLOSION-PROOF VERTICAL MOTORS
440-VOLT EXPLOSION-PROOF MOTORS
2300-VOLT EXPLOSION-PROOF MOTORS

*This typical modern arrangement of motors and control for refinery service utilizes explosion-proof motors for placement right inside hazardous Division 1 areas close to the machines to be operated. Similarly, control designed specifically for service in hazardous or in semi-hazardous Division 2 areas is located near the motors. Alternatively, the control may be general-purpose housed in a specially constructed and ventilated room. In any case, control units are grouped together for quick accessibility and easy maintenance.*

# Here's what you need in motors and control for hazardous areas! }

WHEN YOU COME TO GENERAL ELECTRIC you get far more than the finest in electrical equipment. A General Electric application engineer, familiar with refinery practice, is at your disposal. If desired, he stands ready to take over the job of co-ordinating all the needed components, engineering your power distribution and utilization equipment into one modern, efficient system.

# *corrosion-resisting* **motors and grouped controls**

***—to simplify plant layouts, cut special construction costs!***

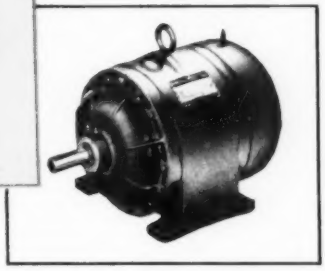
There are more ways than one, of course, to meet hazardous refinery conditions. But because it best combines simplicity, security, and savings, today's trend is toward greater use of explosion-proof, corrosion-resisting motors and group installation of control centers.

Its advantages? Motors and control can be located solely with reference to convenience, accessibility for maintenance, economy of space, and driving machinery. And because it's standard equipment, initial cost is lower.

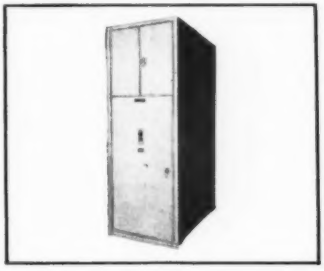
By minimizing explosion hazards, you promote personnel safety and continuity of production. Moreover, you can take full advantage of the cost-saving benefits of the load-center system of power distribution. Full information on motors and control for hazardous areas is contained in Bulletin GEA-4131. We'll gladly send you a copy. ***Apparatus Dept., General Electric Company, Schenectady 5, N. Y.***

Have you seen the "More Power to America" full-color sound slidefilm "Modern Industrial Power Distribution"? Ask your G-E representative to arrange a showing for your organization.

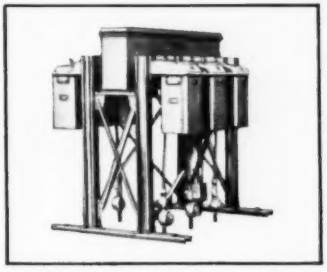
**To meet refinery conditions** and code requirements for hazardous areas, General Electric builds the most extensive line of explosion-proof motors on the market, in the widest variety of types, sizes, and ratings, and for the greatest number of hazardous conditions. In high- and low-voltage control, too, you have an unusually broad range to select from, made especially for use in hazardous and corrosive atmospheres. Let an experienced G-E engineer help you select the right combination for *your* special needs. Take the first step now—just call him at your nearest G-E office.



**G-E Tri-Clad** explosion-proof motors for Class I Group D hazardous locations have strong cast-iron frames and end shields. Non-sparking Textolite cooling fans standard on smaller sizes for greatest corrosion resistance.



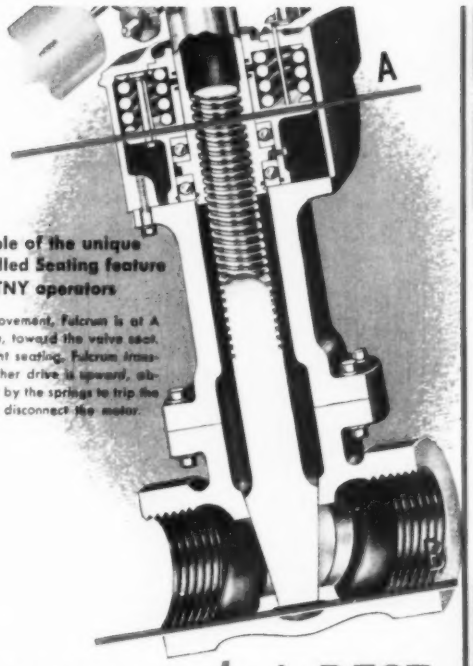
**G-E Limitamp** high-voltage motor controls for semi-hazardous Class I Group D Division 2 areas—factory-assembled, space-saving units—give adequate short-circuit protection with high-IC current-limiting fuses.



**G-E low-voltage control** for hazardous Class I Group D Division 1 areas—in these convenient, racked-up standard assemblies of combination starters and breakers—save installation time, simplify maintenance.

GENERAL ELECTRIC

661-6




**The principle of the unique Thrust Controlled Seating feature of C-H TNY operators**

During seating movement, fulcrum is at A and drive is down, toward the valve seat. At moment of tight seating, fulcrum transfers to B and further drive is upward, absorbed harmlessly by the springs to trip the Thrust switch and disconnect the motor.

# *and you can do it BEST*

## with Cutler-Hammer TNY—the Valve Operator with

## *THRUST* Controlled Seating

Any executive wending his way through the thicket of pipes and valves and processes that is almost *any* plant or pipeline station in the Petroleum Industry is sooner or later to be confronted with the fact . . . "you can do it better with a mechanized valve operator and you can do it *BEST* with a Cutler-Hammer Type TNY, the Valve Operator with *THRUST* controlled seating." Wherever distance, difficulty, frequency of operation or danger make it uneconomical or unwise to operate a valve by hand, *then* and there apply a Cutler-Hammer Valve Operator.

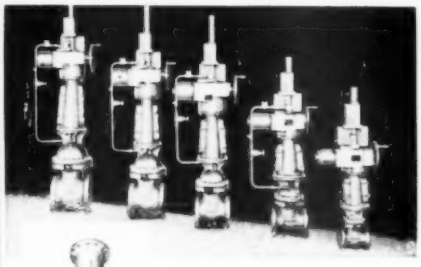
Only the unique principle of *THRUST* controlled seating used exclusively by Cutler-Hammer, can assure positive, accurate tight seating, safely, without necessity of manual attention, without danger of jammed, frozen or inoperative Valves. The motor *positively* drives the valve disc home. During the driving period, the fulcrum is established at the yoke nut by heavy steel springs which exactly balance *tight seat pressure*. Therefore, at the very instant of desired tight seating, the driving fulcrum transfers to the seat of the valve, hence any further drive is into the yoke nut, against the heavy springs which harmlessly absorb motor drift. The movement of the yoke nut against the springs trips the *THRUST* switch to disconnect the motor. The amazing part is that the same degree of tight seating is maintained no matter how much valve parts may expand or contract. No other valve operator has or can have this direct *THRUST* controlled feature. No other valve operator can be as safe and sure and accurate. CUTLER-HAMMER, Inc., 1453 St. Paul Ave., Milwaukee 1, Wis.

CUTLER-HAMMER
VALVE CONTROL
C-H

**Any Valve is a Better Valve with Proven C-H Valve Control**

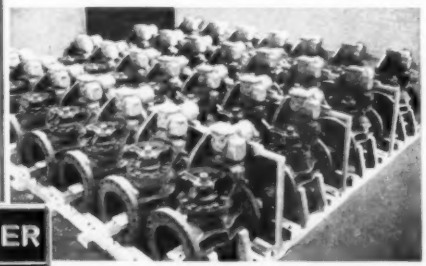
C-H Valve Operators installed on Crane Co. high pressure valves for a processing unit.

Powell 300 lb. gate valve equipped with C-H operator.



Walworth Valves of varying sizes equipped with C-H operators.

C-H Valve Operator as applied to a Yarnall-Waring Seatless Valve.



C-H operators on Nordstrom plug valves for pipeline service.

# *Why* Trackson Pipe-Layers Star on Big-Inch, Long-Mile Lines!

MD7 and MD8 Trackson Pipe Layers, owned by R. H. Fulton & Co., Lubbock, Texas, laying a 26-inch gas line, enroute east, near Liberal, Kansas.

There goes a 26-incher, passing through Southwest Kansas sand—heading for rocky hills, swamps and woods—enroute to increase a big city's gas supply.

The Trackson Pipe Layer quartet, owned by R. H. Fulton & Co., Lubbock, Texas, faces the nation's toughest traction conditions with full confidence. Broad tracks of "Caterpillar" Diesel Tractors insure them traction for all soil, all weather, all terrain.

Trackson Pipe Layer operators command the high-lifting capacity; the full range of pipe lifting, lowering, carrying action, with ease and safety. The heavy automotive-type transmission gives 3 forward cable line speeds, and one reverse, on both drums. Both the load and boom line drums have Trackson's efficient spring-loaded brake for safe and accurate control.

Besides that, the heavy booms; the rigid, all-welded box-section frames—with "Caterpillar" Diesel track-frames for a platform—tell the man at the controls he can trust his machine, with the full-rated load on the blocks.

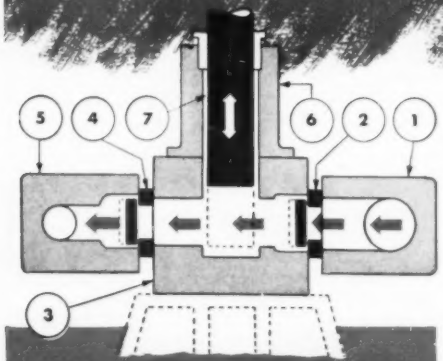
Trackson builds 5 Pipe Layer Models—the PD4, MD6, MD7, MD8 and MDW8, to team with the D4, D6, D7 and D8 Tractors, respectively. See your Trackson-"Caterpillar" dealer for full information or write direct to TRACKSON COMPANY, Dept. OG10, Milwaukee 1, Wisconsin, U. S. A.

**TRACKSON**

**TRACTOR EQUIPMENT**

# IT'S NEW!

## Aldrich 5" Stroke Direct Flow Pump




**DIRECT FLOW FLUID-END DESIGN**

The above diagramatic drawing illustrates the Aldrich Direct Flow principle and identifies the location and general arrangement of: (1) SUCTION MANIFOLD, (2) VALVE ASSEMBLY, (3) WORKING BARREL, (4) VALVE ASSEMBLY, (5) DISCHARGE MANIFOLD, (6) STUFFING BOX, (7) PLUNGER.

NOTE THESE FEATURES: Close clearance design • Ideal for handling light liquids • Sectionalized construction • Ease in handling • Economical when special materials are required for corrosive liquids • Easy access to valve assemblies • Removable stuffing boxes and two sizes of fluid-ends available to permit interchangeability of plunger sizes ranging from 1¾" to 3½".

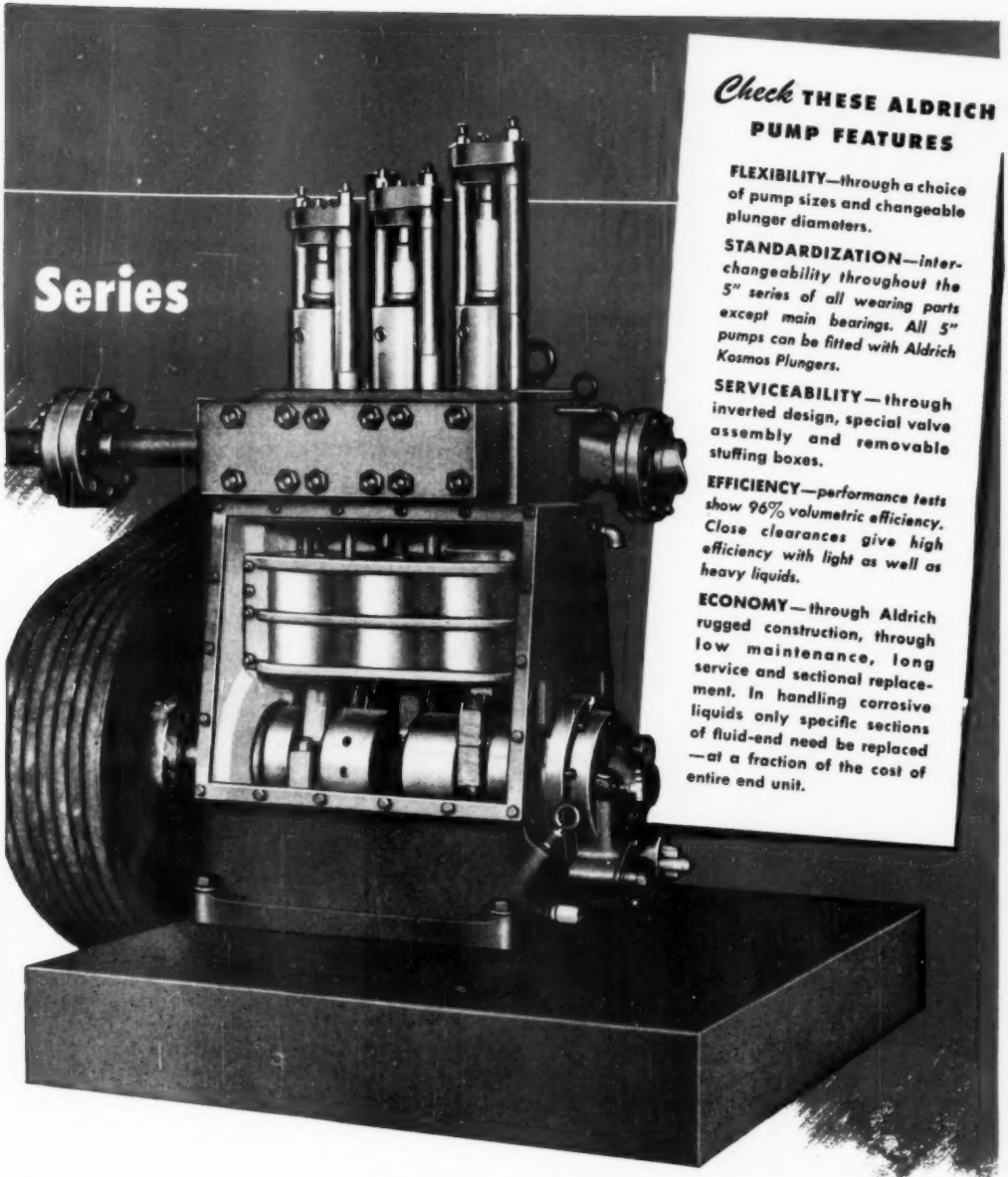
New in design and construction, the Aldrich 5" Stroke Direct Flow Pump features —besides many distinct advantages—*a new low in price.* Built in the standard Aldrich series—Triplex, Quintuplex, Septuplex, and Nonuplex—these 5" Stroke Direct Flow Pumps range from 100 hp to 275 hp and handle almost all liquids encountered in oil field and petroleum service.

An outstanding advantage of this pump lies in the sectionalized fluid-end. The fluid-end on the new 5" series is a combination of several separate units; namely, a working barrel, valve assemblies, stuffing boxes and suction and discharge manifolds. This sectionalized assembly has a distinct advantage where corrosive liquids are handled. Should corrosion occur, only that *section* of the fluid-end affected need be replaced—*at a fraction of the cost of an entire end unit.*

Send for Data and Specification Sheets for full details on how the new Aldrich 5" Stroke Direct Flow Pump can assure you *better* service and *improved* economy. Write today.

ALDRICH

**ALL ALDRICH PUMPS**




## *Check* THESE ALDRICH PUMP FEATURES

**FLEXIBILITY**—through a choice of pump sizes and changeable plunger diameters.

**STANDARDIZATION**—*interchangeability throughout the 5" series of all wearing parts except main bearings. All 5" pumps can be fitted with Aldrich Kosmos Plungers.*

**SERVICEABILITY**—through inverted design, special valve assembly and removable stuffing boxes.

**EFFICIENCY**—*performance tests show 96% volumetric efficiency. Close clearances give high efficiency with light as well as heavy liquids.*

**ECONOMY**—through Aldrich rugged construction, through low maintenance, long service and sectional replacement. In handling corrosive liquids only specific sections of fluid-end need be replaced —at a fraction of the cost of entire end unit.

*Representatives:* Birmingham • Bolivar, N. Y. Boston • Chicago • Cincinnati • Cleveland Denver • Detroit • Duluth • Houston Jacksonville • Los Angeles • New York • Omaha Philadelphia • Pittsburgh • Portland, Ore. Richmond, Va. • St. Louis • San Francisco Seattle • Spokane, Wash. • Syracuse • Tulsa

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*The* **FIRST** *Name in Reciprocating Pumps*

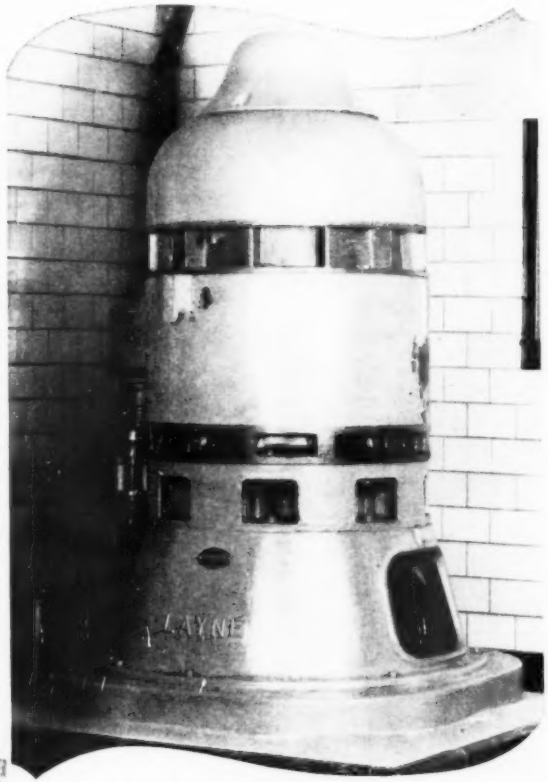
**HAVE STAYING POWER!**

## What's the value of

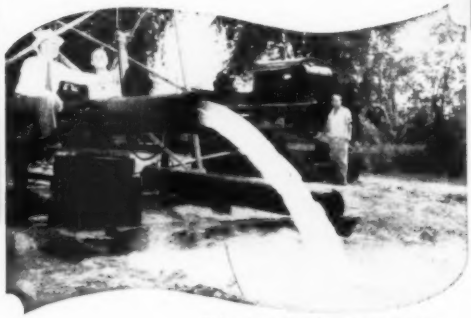
# HIGH PRECISION IN MANUFACTURE

Precision is a mighty important requirement by the entire Layne organization. It has always been so. It is the only feature that can adequately support skilful engineering and top quality materials. You can check the results of high precision in every Layne installation. You will notice that they are smoother in operation, produce greater quantities of water and have the lowest figures in upkeep expense.

All well water systems for commercial use are complicated underground construction projects that require more than just ordinary skill. Fortunately, Layne has an abundance of the real "know how" that came from years and years of world wide experience. This means that when Layne plans a well water system, drills the wells and furnishes the pumps, you are going to get a thoroughly dependable and tip top quality job that will give years of fine service.




*"BETTER BUILT —FOR BETTER SERVICE"*



Old, worn out and costly to operate pumps should be replaced with Layne Verticals. Sizes are from 40 to 16,000 gallons per minute. Write for Pump Catalog.

If your plans call for more water in 1950, why not call in Layne first. You will obtain the value of their years of experience, the advantages of their proved "know how" and the satisfaction of dealing with a firm of long established high reputation. For literature, catalogs or any special information, address LAYNE & BOWLER, INC., General Offices, Memphis 8, Tenn.

# LAYNE

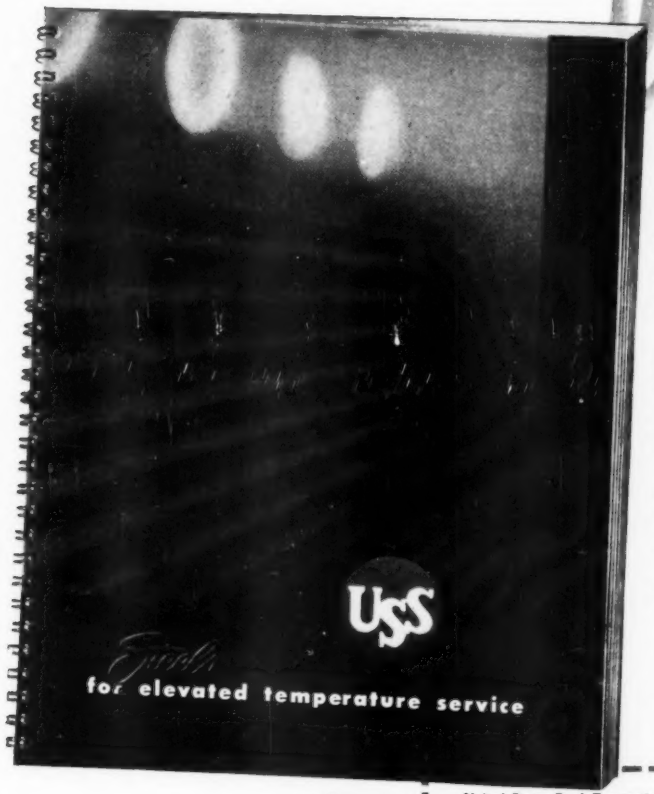
*BUILDERS OF HIGH EFFICIENCY*

## WELL WATER SYSTEMS

**ASSOCIATED COMPANIES**—Layne-Arkansas Co., Stuttgart, Ark. ★ Layne-Atlantic Co., Norfolk, Va. ★ Layne-Central Co., Memphis, Tenn. ★ Layne-Northern Co., Mishawaka, Ind. ★ Layne-Louisiana Co., Lake Charles, La. ★ Louisiana Well Co., Monroe, La. ★ Layne-New York Co., New York City ★ Layne-Northwest Co., Milwaukee, Wis. ★ Layne-Ohio Co., Columbus, Ohio ★ Layne-Pacific, Inc., Seattle, Wash. ★ The Layne-Texas Co. Ltd., Houston, Tex. ★ Layne-Western Co., Kansas City, Mo. ★ Layne Minnesota Co., Minneapolis, Minn. ★ International Water Corp., Pittsburgh, Pa. ★ International Water Supply, Ltd., London, Ont. ★ Layne-Hispano Americana, S.A., Mexico, D. F. ★ General Filter Company, Ames, Iowa.

# "Steels for elevated temperature service"

## A new, authoritative book on this important subject . . . yours for the asking!




JUST PUBLISHED, this book is the result of 15 years' study of high temperature problems by United States Steel Corporation and its manufacturing subsidiaries.

It is designed to be helpful to engineers, metallurgists and chemists in their quest for suitable structural materials that will maintain adequate strength under the elevated temperatures involved in the power, petroleum, transportation, chemical, and other industries having similar problems.

In its pages are discussed the general principles of behavior of ferrous materials under elevated temperatures, the various factors that influence this behavior, as well as the special testing equipment and laboratory technique used to evaluate the elevated temperature properties of steel.

In the comprehensive data section, the significant property values of *twenty-one* different steels, suitable for use at elevated temperatures, are presented both in tabular and graphical form. Characteristics such as high temperature strength, corrosion resistance, weldability and others are discussed.

Much of the information in this book has never before been published. You'll find it invaluable as a reference if your work involves the operation of equipment that must function at elevated temperature. Use the coupon.

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UNITED STATES STEEL

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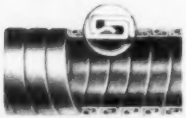
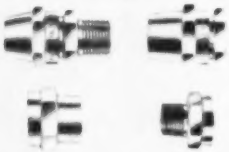
Corrugated Metal Hose in steel, bronze and stainless steel.



Convoluted Metal Hose in variety of types—steel, bronze and alloys.



Couplings to meet every need.

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| √ | Insulated Hose |
| √ | Charging Hose |
| √ | Expansion Joints |
| √ | Flexible Connections |
| √ | Exhaust Hose |
| √ | Platen Press Connections |
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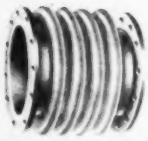
| √ | Loading & Unloading Hose |
| √ | Gas & Air Hose |
| √ | Vacuum Hose |
| √ | General Utility Hose |
| √ | Bellows |
| √ | Flexible Lamp Arms |



Expansion Joints for high and low pressures—stainless steel and copper.

Bellows in all sizes for all requirements—stainless steel and brass.

Metal Conduits in a variety of types and materials.

Flexon identifies CMH products which have served industry for more than 47 years.

Now you can secure all your flexible metal hose needs from a single manufacturer. The handy check list above indicates only the more common types and assemblies manufactured by CMH. Other types and assemblies are also available. Bulletin 102, illustrated at the left, an application guide for CMH Flexible Metal Hose is available on request. Other literature giving full details on expansion joints, bellows and speciality items is also available. Write for your copies of the material in which you are interested and have it available for reference at all times.

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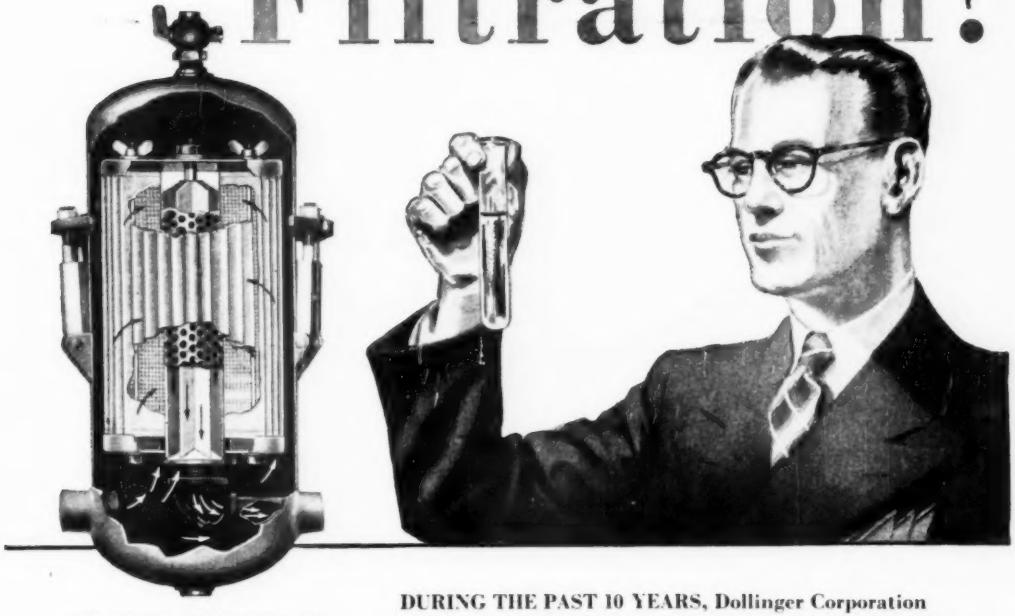
**Maywood, Illinois**

Plants at Maywood, Elgin and Rock Falls, Illinois
In Canada: Canadian Metal Hose Company, Ltd., Brampton, Ontario

# Have You a Problem in Liquid Filtration?



STAYNEW MODEL ELS LIQUID FILTER

*Tested and Approved by Users Everywhere*

SLIP-ON INSERT

***The most versatile liquid filter ever developed.*** Design permits use of any filtering medium available in sheet form that can be crimped. Exclusive SLIP-ON INSERT of original Radial Fin Construction permits simple and inexpensive replacement or cleaning of medium on the job.

**DURING THE PAST 10 YEARS, Dollinger Corporation engineers and laboratory technicians have solved literally hundreds of tough liquid filtration problems for industry. Media covering a wide range of types and materials ranging from fine wire meshes in various metals and alloys thru fabrics, plastics, ceramics and minerals have been tested and adapted for use in handling a comprehensive list of liquids. Many entirely new ideas and concepts have been developed, and the information indexed for quick reference.**

**This unsurpassed fund of knowledge in the highly specialized field of liquid filtration is yours for the asking. Either write, c/o Dollinger Testing Laboratory, stating your problem, or ask for Bulletin D-1L. This Bulletin completely describes and illustrates the various Staynew Liquid Filters and offers a convenient CHECK LIST for use in submitting your problem.**

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## Makes FWD America's Foremost Heavy-Duty Truck

**Here's actual operating proof** in oil field service. This FWD is plowing through loose sand to get equipment to location. Yes — work such as this demands going power only four driving wheels can give you. What's more, you know before you buy, because FWDs are proving-ground tested to climb a 6% grade through blow sand 3 feet deep. *No wonder many of the world's leading oil field operators standardize on FWDs — with individual fleets of over 600 units!*

WHAT FWDs DO ON THE PROVING GROUND
1 Highball over hilly curved roads!
2 Slog thru mud — up to the bumper!
3 Speed over 100-ft. unbanked circle!
4 Twist over ditches — 18 inches deep!
5 Drive up 6% grade thru 3-ft. of sand!
6 Climb 70% grade from dead stop!
7 Climb 8-in. beam from standstill!
8 Drill pole holes to prove equipment!
9 Speed safely over level highways!
1
2
3
4
5
6
7
8
9

**This is FWD's proving ground.** This is your assurance that the FWD you select has the stamina to insure long life without expensive mechanical breakdowns.

**An FWD plows through 3 feet of sand** at the proving ground. For all the facts on FWD, see your FWD distributor — or write FWD direct.

### An Invitation To Truck Buyers

We invite you to watch FWDs pass a series of rigid performance tests. Ask your FWD distributor to arrange your visit to our plant. Or — if you can't get away, ask him to show you the movie, *The FWD Story*. In either case, you will see for yourself how FWD trucks can help solve your heavy-duty trucking problems.

Walter C. Pine
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FOUR AND SIX WHEEL DRIVE TRUCKS

*America's Foremost Heavy-Duty Truck*

# How to get a fire-extinguishing system FREE!

An auto manufacturer had a mean fire hazard in some automatic screw machines.

The job called for a light oil coolant. With its low flash point the oil frequently caught fire from heat generated by machining.

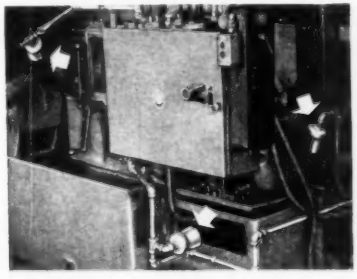
The extinguishers used by the company killed these repeated fires successfully. But the extinguisher chemical spoiled the coolant—left a mess on the machine. And downtime needed to clean the machine and replace oil after a fire was never less than 16 hours—often ran to 2 or 3 days.

Kidde extinguishing systems were installed on all these screw machines. They detect and kill fires automatically. The dry clean $CO_2$ discharged by the *Kidde* systems doesn't mess up the machine. It evaporates from the coolant oil, leaving no trace. After a fire, *downtime is 1 hour, no oil need be replaced.*

The *Kidde* systems cost $800 per machine. *The company says they paid for themselves in the first month!*

That's how our friends, the auto manufacturers, figure they got the *Kidde* installation free. You'd figure that way, too, wouldn't you?

If you want to know more about *how* such systems work, mail the coupon for literature.



**Arrows show location of *Kidde* Multijet Nozzles through which $CO_2$ is discharged to kill fires starting on automatic screw machine during cutting operations. The $CO_2$ does the job fast—and clean.**

**Kidde**

**Walter Kidde & Company, Inc., 154 Main Street, Belleville 9, N. J.**
**In Canada: Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.**

**Walter Kidde & Company, Inc.**
**154 Main Street, Belleville 9, N. J.**

Gentlemen: Please send me descriptive literature on *Kidde* automatic extinguishing systems.

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for DEPENDABLE low cost

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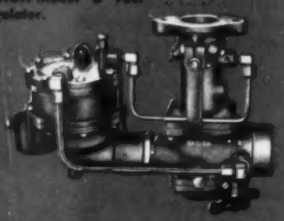
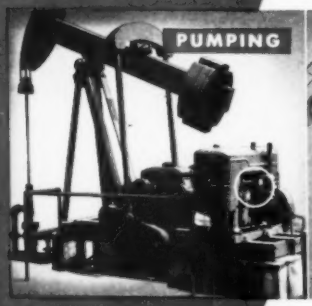
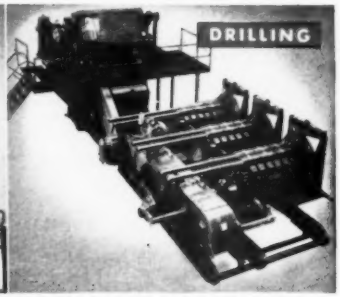
With every well drilling operation boiled down to a split second, there's little excuse nowadays for an unscheduled shut-down due to drilling engine failures. Gas engines provide DEPENDABLE and ECONOMICAL 24 hour service with the least maintenance. Good performance depends largely upon the carburetion, which in the case of over 90% of all gas engines is ENSIGN. Over 35 years of carburetor experience are designed into the simple and rugged Ensign models used on todays engines. Operators everywhere have learned to count on gas engines equipped with ENSIGN.

ENSIGN Model "Kgal" combination Carburetor for use with Natural Gas, Butane-Propane or Gasoline.

ENSIGN Model "Kgl" Straight Gas Carburetor for either Natural Gas or Butane-Propane and ENSIGN Model "D" Fuel Regulator.






Easy to start and easy to adjust on either Natural Gas, Butane-Propane or Gasoline, ENSIGN offers a proven unit. It matters little the type of engine: Slow speed single cylinder or the high speed multi-cylinder, ENSIGN is proved and accepted the world over for the best all around performance and dependability.

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# Buckeye DITCHERS *will cut your costs*

**BUCKEYE MODEL 312 PIPELINE AND UTILITY DITCHER** is very popular for cross country and gathering lines, refinery installations, etc. Provides fastest digging for ditches from 16" to 30" wide and down to 6'-0" deep. Ask for Bulletin 312.

**BUCKEYE MODEL 51 PIPELINE DITCHER** is the world's largest ditcher . . . saves money on big inch pipe lines . . . often averages a mile or more of ditch per working day. Width of cut 40" and 50", maximum depth 8'-6". Ask for Bulletin 51.

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## *NATIONWIDE SERVICE ORGANIZATION*

North, South, East or West . . . wherever your pipeline job may be, Buckeye ditchers will cut your ditching costs for two important reasons: First, because of the many inherent design advantages that mean faster digging and longer life. Second, because of the outstanding dealer organization that means better service.

Many years were needed to build this service organization of 83 Buckeye Dealers . . . because such an organization has to be much more than a list of names. Each company must be of proven reliability . . . have the experience, the equipment, the trained staff and the local parts stock to be really helpful to all users of Buckeye Ditchers in the territory. Each dealer must also appreciate the opportunity for continuous improvement in his service and work in that direction. The Buckeye Service Organization is a known quantity . . . known for giving service that helps you get "the most ditch for the least money."

**GAR WOOD INDUSTRIES, INC.**
FINDLAY DIVISION • FINDLAY, OHIO

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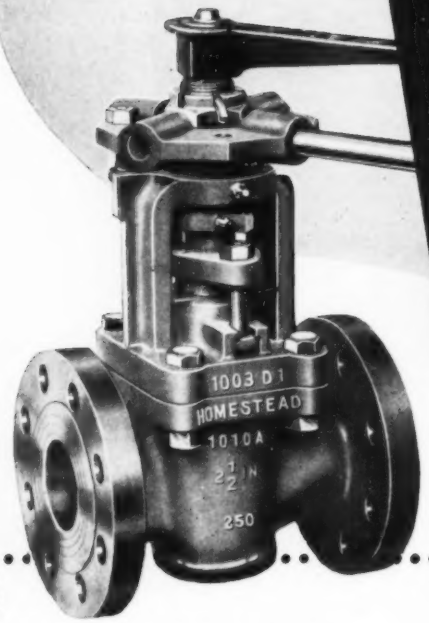
~~Corrosion~~...~~Temperature~~...~~Pressure~~

*Can't faze*

# HOMESTEAD Lever-Seald VALVES

*They're Stick Proof*




- Instant Stick-Proof operation.
- Quarter-turn fully opens or closes.
- Positive seal without lubrication.
- Seating surfaces always protected in both open and closed positions. Corrosion practically eliminated.
- Unobstructed straight-line fluid flow.
- All operating parts protected from damaging effects of service conditions and weather.

For 16 years, they have been first choice for difficult services where extremes of temperature or pressure or corrosive line fluids cause ordinary valves to "stick" or "seize." Due to their exclusive "Lever-Seald" construction, they render instant, Stick-Proof service. They operate fast, too . . . full open or close in a quarter-turn . . . 16 to 28 times faster than screw-stem-type valves. And because all operating parts are protected from the damaging effects of line fluids, service conditions and weather, long life, low maintenance and trouble-free service are assured.

HOMESTEAD LEVER-SEALD VALVES are made in metals and alloys to meet service requirements; sizes 1½" to 12"; for pressures from vacuum to 1500 pounds.

Send for your copy of Reference Book No. 39-3. No obligation.

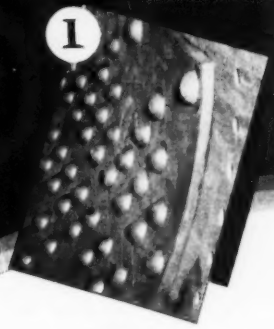
**HOMESTEAD VALVE MANUFACTURING CO.**

"Serving Since 1892"

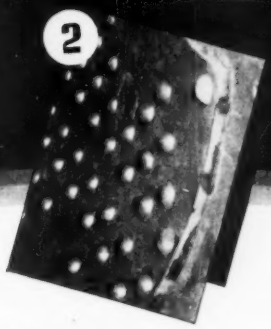
**P. O. Box 403, CORAOPOLIS, PENNA.**

# Lucey's Latest

## 3 STEPS TO BOILER PERFECTION

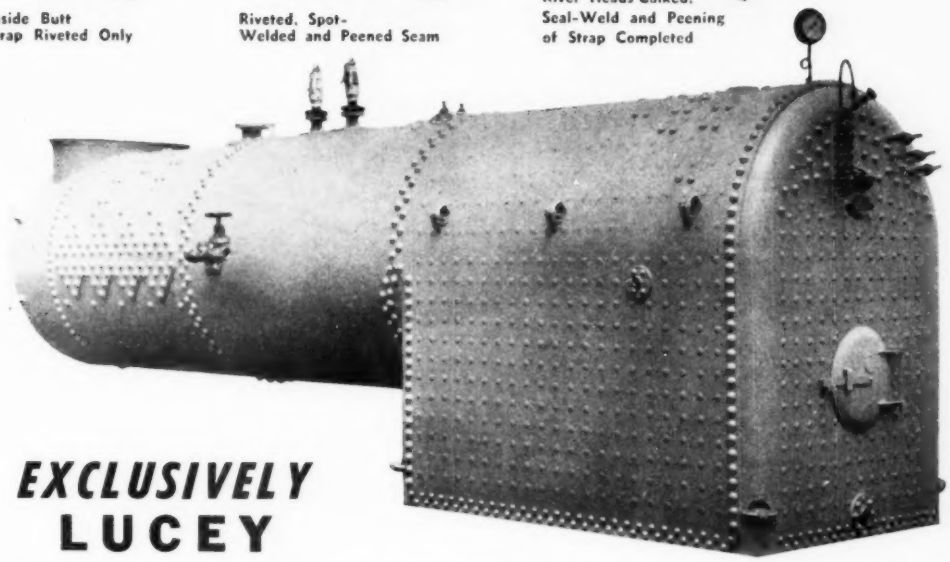



Inside Butt Strap Riveted Only




Riveted, Spot-Welded and Peened Seam

Rivet Heads Calked, Seal-Weld and Peening of Strap Completed



## EXCLUSIVELY LUCEY

To merely comply with the ASME and API Boiler codes has never quite satisfied Lucey. Lucey is offering in their new Inside Seal-Welded and Double-Calked Boiler, construction features far in excess of Boiler Code requirements.

Complete sealing-off of all possible joint leakage and seepage assures the highest in every-day performance. Double-Calked — inside and out — as well as Inside Seal Welding of the butt straps makes Lucey Oil Country Boilers the best for your money.

With the addition of these exclusive Lucey construction methods, coupled with many other exclusive Lucey features, Lucey continues to make "the best in boilers." The New Lucey Inside Seal-Welded and Double-Calked Boiler is now standard construction — and there is no increase in price.

**DISTRIBUTORS:**

Lucey Products Corporation, Tulsa, Oklahoma
Houston Oil Field Material Co., Inc., Houston, Texas
Jones & Laughlin Supply Co., Tulsa, Oklahoma
Murray-Brooks, Inc., Lake Charles, Louisiana
Bethlehem Supply Co. of Calif., Los Angeles

**EXPORT:**

Lucey Export Corporation, 233 Broadway, New York 7, N. Y.
Broad Street House, E. C. 2, London, England

Lucey Boilers are approved for use in Canada

LUCEY

# LUCEY BOILER and MANUFACTURING CORPORATION

Chattanooga, Tenn.

BETHLEHEM SUPPLY CO. OF CALIF.
6000 ALCOA AVENUE, VERNON
LOS ANGELES 54, CALIF.

418 STERLING BUILDING
HOUSTON, TEXAS

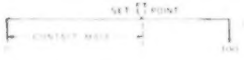
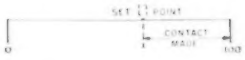
THE Brown Air-O-Larm Signal System is a simple and reliable means of operating an electrical circuit at pre-determined set points on a pneumatic flow controller . . . all pneumatically operated in an explosion-proof housing.

The system is safe, economical and completely dependable. Its mercury switches operate safely . . . even in corrosive refinery atmospheres. It has amazing flexibility . . . as shown in the various types of action depicted below . . . and can be wired so that air failure will energize or de-energize the circuit with respect to pen position.

A Brown Pneumatic Flow Controller with the Air-O-Larm Signal System will be a time and money-saving addition to your plant equipment. Call in your local Honeywell engineer for a discussion of your application . . . he is as near as your phone!

## YOU CAN HEAR AS WELL AS SEE

## WITH THE AIR-O-LARM SIGNAL SYSTEM

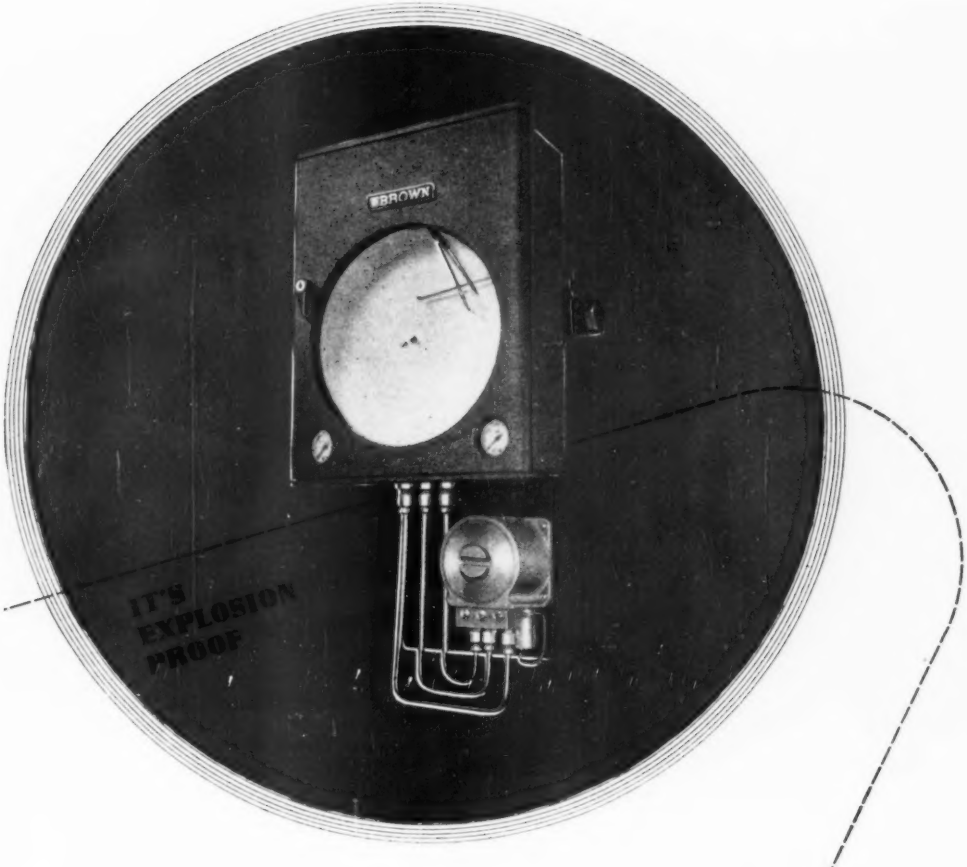
| | | |
|---|---|---|
| ACTION |  |  |
| DESCRIPTION | *S. P. S. T. switching action with contact made below the set point. Example: One alarm signal.* | *S. P. S. T. switching action with contact made above the set point. Example: One alarm signal.* |

BROWN INSTRUMENTS
WORLD'S LARGEST ORGANIZATION FOR ADVANCED INSTRUMENTATION AND CONTROL

MINNEAPOLIS-HONEYWELL REGULATOR CO. • BROWN INSTRUMENTS DIVISION

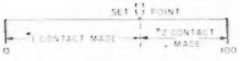
4488 Wayne Ave., Philadelphia 44, Pa.

*Offices in 73 principal cities of the United States, Canada and throughout the world*

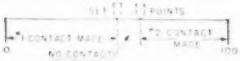



**CRITICAL FLOW CONDITIONS...**

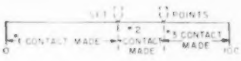
**ON BROWN PNEUMATIC FLOW CONTROLLERS!**




*S. P. D. T. switching action with one contact above, one below the set point. Example: Two alarm signals.*




*S. P. D. T. switching action with neutral zone—one contact above, one below neutral. No contact made in neutral. Example: Two alarm signals.*




*S. P. 3T. switching action with one contact made in each zone. Example: Three alarm signals.*

*Advanced Instrumentation*
FOR THE PETROLEUM INDUSTRY

*An Oliver "Cletrac" with side boom hard at work taking up 16-inch pipe. 51 miles of 16-inch and 6 miles of 12-inch pipe were taken up from Drumright to Seminole.*

# WITH OLIVER "Cletrac"!

Handling long strings of pipe is easy with an Oliver "Cletrac" crawler tractor. The "straight-line" travel of these husky tractors is made-to-order for pipe line work. Regardless of the side drag of side-mounted equipment and side loads, they travel straight ahead . . . eliminate waste motion . . . save time and fuel.

It's the exclusive Oliver "Cletrac" steering principle that gives you this important *plus* advantage. One track can be speeded up . . . the other slowed down to compensate for the side pull of the boom and load of pipe. The wasteful zigzag required by the ordinary tractor when a heavy side pull is present is eliminated. An Oliver "Cletrac" can travel parallel to and well away from the trench to minimize the danger of cave-ins.

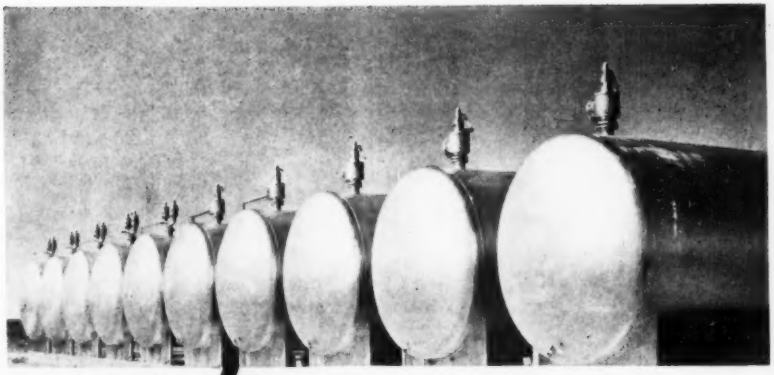
For pipe lining, for clearing right-of-ways, for road building, preparing river crossings, back-filling, hauling equipment around the rigs, an Oliver "Cletrac" is the oil field favorite. Your Oliver "Cletrac" dealer will be glad to give you the complete story. The OLIVER Corporation, Industrial Division: 19300 Euclid Ave., Cleveland 17, Ohio.

**Cletrac**
**a product of**
**The OLIVER Corporation**
*A complete line of Crawler and Industrial Wheel Tractors*

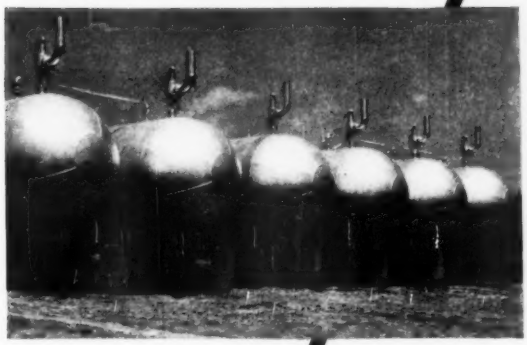
*"THE SIGN OF EXTRA SERVICE"*

OLIVER Cletrac SALES SERVICE

Consolidated Safety Relief Valves on gasoline storage tanks.



Consolidated Safety Relief Valves on propane and butane storage tanks.



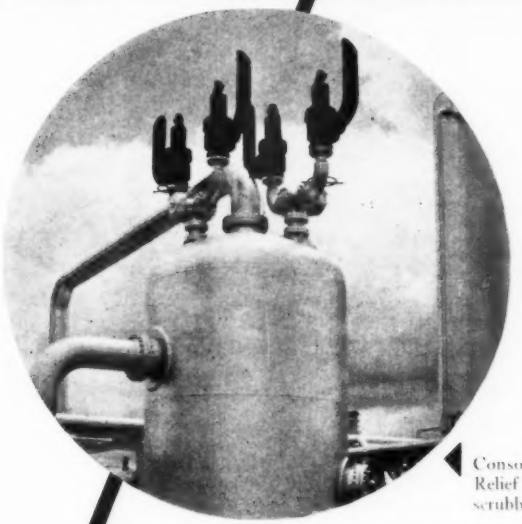
# Safety plus Performance

CONSOLIDATED SAFETY RELIEF VALVES incorporate extra safeguards available *in no other valve*. The fixed capacity of these valves is *built in*, is not dependent upon the position of multiple and adjustable blow-down rings. A single adjustment controls blow-down only—without disturbing lift or secondary annular orifice areas.

Outside bevel seat and floating guide construction eliminate leakage under discharge piping stresses. Maximum tightness in all conditions of operation is assured.

With 25% fewer parts than ordinary valves and simplicity of design, maintenance is reduced and standardization problems minimized.

When you specify Consolidated Safety Relief Valves, you are assured of safety plus continued performance at rated capacity.



Consolidated Safety Relief Valves on main scrubber.

## CONSOLIDATED SAFETY RELIEF VALVES

*A Product of*

MANNING, MAXWELL & MOORE, INC.
TULSA, OKLAHOMA

Makers of 'Consolidated' Safety and Relief Valves, 'American' Industrial and 'Microsen' Electrical Instruments, 'Hancock' Valves, 'Ashcroft' Gauges. Builders of 'Shaw-Box' Cranes, 'Budgit' and 'Load Lifter' Hoists, and other lifting specialties.

# 8 Big Reasons

## WHY THE HD-7 AND HD-10 ARE SO POPULAR

1,000-HOUR LUBRICATION of truck wheels, support rollers and idlers. You operate six months on a 40-hour week basis with just *one lubrication* . . . instead of daily, or even weekly, attention. Think what this means in labor and lubricant savings . . . and in working time gained! Think of the safety factor, too — no costly damage by greasing neglect.

GENERAL MOTORS 2-CYCLE DIESEL ENGINE Rugged, simple, economical, "hanging-on" power. Smooth — every down stroke a power stroke . . . less wear and tear on tractor and operator. Far less power loss than other engines at high altitudes.

INTERCHANGEABLE ENGINE PARTS Nearly all of the GM engine wearing parts are interchangeable with each of the GM engines on the various models of A-C tractors and motor graders — no matter the size. Lowers parts investment, simplifies maintenance for Allis-Chalmers fleet owners.

INSTANT STARTING GM 2-cycle diesel engines start as easily as your automobile . . . and they *start* and *operate* on *diesel fuel*. No need to let 'em idle during work-stop periods — no unnecessary engine wear or fuel waste.

FAST MANEUVERING 2-cycle diesel tractors are well known for their fast-working ability — not only for quickly traveling from cut to fill, but for turning around instantly in their tracks . . . and for easy maneuvering in and around tight places — especially important on bulldozing. Time saved is money made!

PROPER BALANCE Weight, speed and power are positively balanced in A-C tractors, assuring top performance on every job — pulling, pushing, lifting.

OPERATOR COMFORT All these advantages mean operator satisfaction, too — resulting in more work done, more easily. Besides — he has a big, wide, comfortable seat, cushioned back, arm rests, roomy platform, convenient controls, good vision.

MATCHED ALLIED EQUIPMENT Each Allied manufacturer, skilled in his own field, works in complete cooperation with Allis-Chalmers in designing and building auxiliary equipment.

**MODEL**

**HD-7**

**(shown here)**

**60.10 drawbar hp. Four speeds forward, to 5.00 m.p.h.; reverse to 1.89. Weight: 52" tread, 13,830 lbs.; 63" tread, 14,000 lbs. Available with large idler.**

**MODEL**

**HD-10**

**86.63 drawbar hp. Six speeds forward, to 6.03 h.p.h.; two reverse, to 4.15. Weight 62" tread, 21,000 lbs.; 74" tread, 21,600 lbs. Available with large idler.**

**ASK ANY OWNER . . . OR ARRANGE FOR A DEMONSTRATION . . .**

**"SEEING IS BELIEVING"**

**ALLIS-CHALMERS**

TRACTOR DIVISION · MILWAUKEE 1, U. S. A.

# Your Trucks Deliver More—for Less with EATON *2-Speed Truck* AXLES

Eaton 2-Speed Axles give you both pulling power and speed in the same vehicle—instantly available to meet every specific operating need. Your trucks do more jobs, make faster trips. With Eaton 2-Speed Axles, engines run at most efficient and economical speeds; operating and upkeep costs are reduced to a minimum; thousands of miles are added to vehicle life. And Eaton's planetary design adds thousands of miles to axle life. Gear tooth loads are better distributed; gear speeds are slower; stress and wear are reduced to a minimum. Eaton 2-Speed Axles are available for most trucks of the 1½-ton class and larger. Ask your truck dealer for a road demonstration.

*Axle Division*

**EATON MANUFACTURING COMPANY**

**CLEVELAND, OHIO**

**PRODUCTS:** SODIUM COOLED, POPPET, AND FREE VALVES • TAPPETS • HYDRAULIC VALVE LIFTERS • VALVE SEAT INSERTS • ROTOR PUMPS • MOTOR TRUCK AXLES • PERMANENT MOLD GRAY IRON CASTINGS • HEATER-DEFROSTER UNITS • SNAP RINGS • SPRINGTITES SPRING WASHERS • COLD DRAWN STEEL • STAMPINGS • LEAF AND COIL SPRINGS • DYNAMATIC DRIVES, BRAKES, DYNAMOMETERS

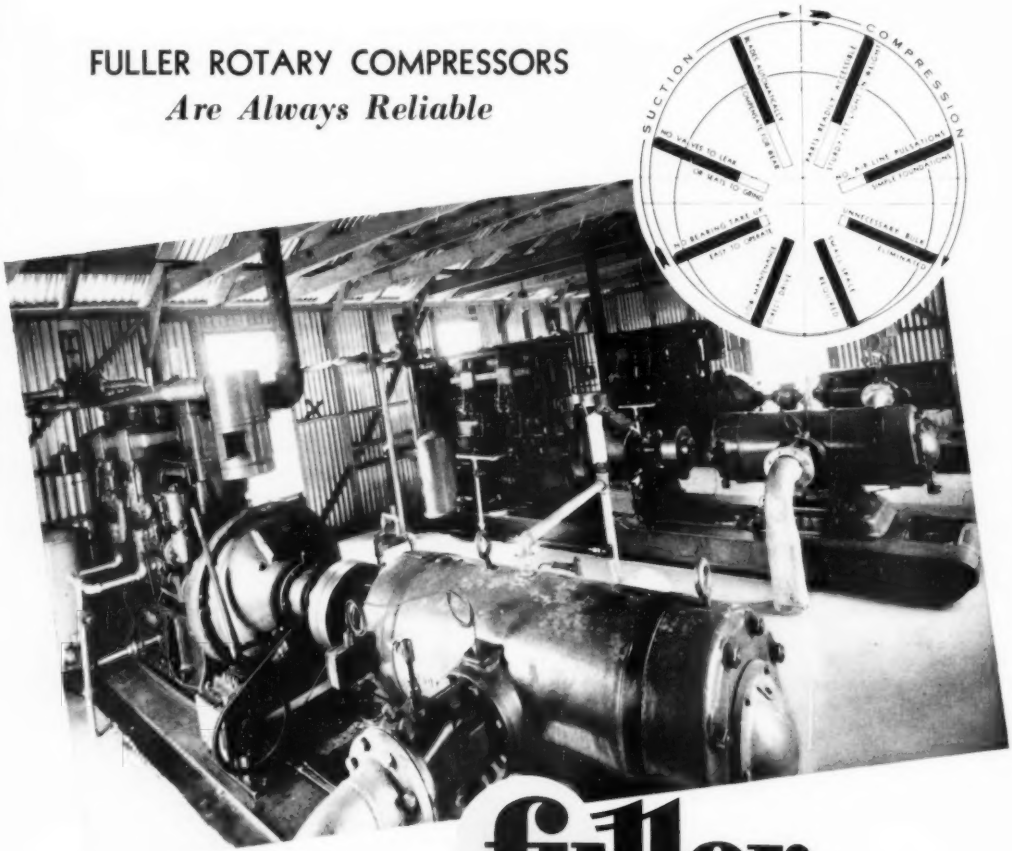
# SPOT 'EM WHERE YOU NEED 'EM THEN FORGET 'EM!

Those compressors along your gathering lines that boost pressure to trunk line level need not be a headache and a costly maintenance item. Fuller Rotary Compressors can be spotted where you need them . . . and then practically forgotten. You can always be sure they'll do their job efficiently and economically.

Why? Because Fuller Rotary Compressors are completely reliable. They have few moving parts . . . the rotor, bearings and blades . . . making frequent inspection unnecessary. There are no valves to leak or seats to grind. Internal parts are easily accessible. Blades automatically compensate for wear; capacity is maintained for the life of the machine . . . Fuller Compressors are designed, engineered and built to give a lifetime of new machine efficiency.

Fuller engineers are always at your service to show you how you can boost pressure most efficiently and with maximum economy. Call them in today . . . or write for Bulletin C-5 which describes and illustrates in detail Fuller Rotary Compressors.

## FULLER ROTARY COMPRESSORS
## *Are Always Reliable*




**fuller**

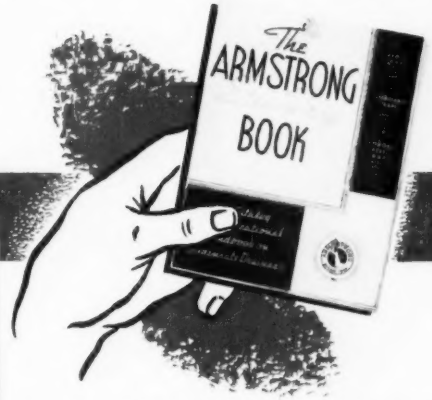
DRY MATERIAL CONVEYING SYSTEMS
AND COOLERS—COMPRESSORS
AND ASSOCIATED EQUIPMENT

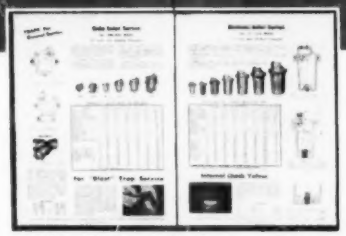
FULLER COMPANY, Catasauqua Pa.
120 S. LaSalle St., Chicago 3
420 Chancery Bldg., San Francisco 4

C-195

# "You can engineer any trapping job with this book"

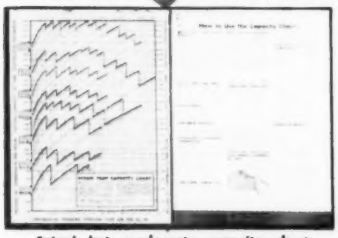
YOU CAN'T GO WRONG



Physical data and prices on all sizes and types of Armstrong steam traps.

How to calculate condensate loads and select traps for all classes of equipment.



Actual hot condensate capacity chart for every Armstrong trap, recommended safety factors and specific recommendations for many types of equipment.

THERE is no guess work about steam traps or steam trap selection when you have the 36-page Armstrong Steam Trap Book to work with. You don't waste money on traps that are too big for the job. You don't get inefficient drainage with traps that are too small.

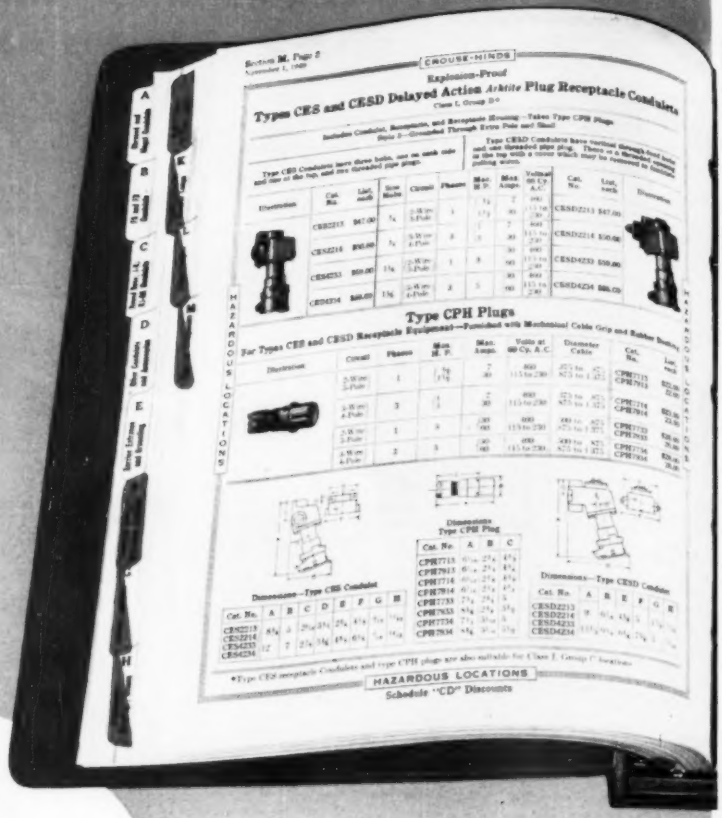
This book explains the design, operation and advantages of Armstrong steam traps, specifies materials used, gives complete dimensional data, includes list prices, actual capacities under working conditions. There are 10 pages of tabular and technical data explaining how to calculate condensate loads and select the correct trap for the job, complete instructions on installation and maintenance. The Steam Trap Book also describes Armstrong traps for draining moisture from compressed air systems, Armstrong steam humidifiers for adding moisture to dry air and Armstrong non-condensable gas purgers for removing air from refrigeration systems.

Anyone is welcome to a copy of this useful guide to good trapping practice. Send for yours today.

**ARMSTRONG MACHINE WORKS**
868 Maple St., Three Rivers, Mich.

# ARMSTRONG STEAM TRAPS

# CROUSE-HINDS *Announces a*



## . . . with many

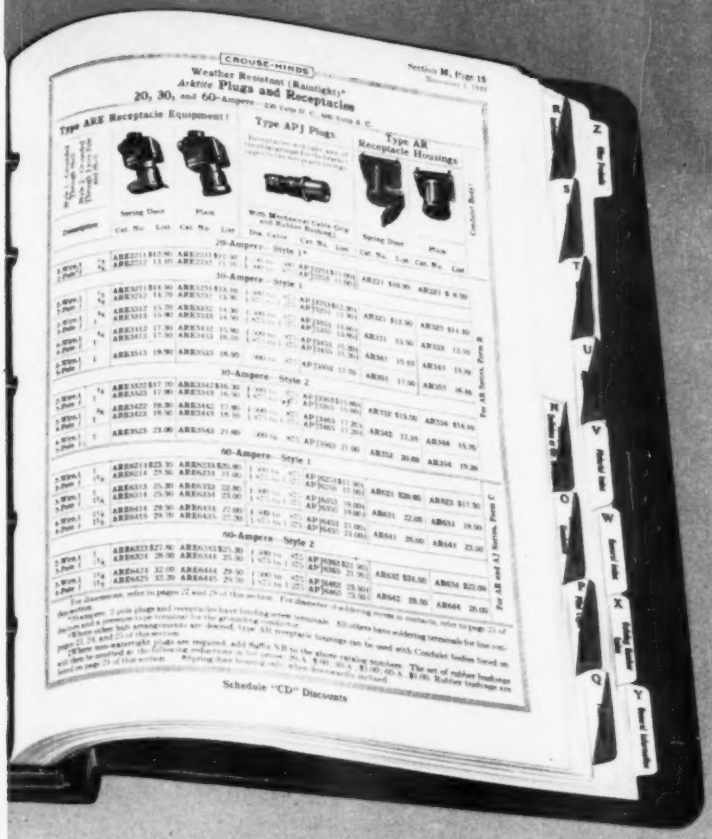
The many improved features in this catalog are the result of our years of cataloging experience combined with helpful suggestions from users of our products.

Among the outstanding features of the catalog are the logical divisions of Condulets into sections, the arrangement of the Condulets within the sections and the colored index tabs which simplify its use. For example, Section S contains listings of Condulets for industrial control. Section K contains listings of lighting fixtures

CONDULETS • TRAFFIC SIGNALS

# *NEW* CONDULET Catalog

## No. 3000




CONDULET
REG U S PAT OFF
First in the field
STANDARD OF QUALITY

## NEW features for your convenience

for general illumination. Section T contains listings of circuit breaker Condulets.

BUFF index tabs identify Condulets for use in non-hazardous locations.

RED index tabs identify Condulets for use in hazardous locations.

Combined RED and BUFF tabs identify Condulets for use in both hazardous and non-hazardous locations.

These features make this catalog a convenient reference book from which to select proper Condulets for required applications.

**CROUSE-HINDS COMPANY**
**Syracuse 1, N. Y.**

Offices: Birmingham — Boston — Buffalo — Chicago — Cincinnati — Cleveland — Dallas — Denver — Detroit — Houston — Indianapolis — Kansas City — Los Angeles — Milwaukee — Minneapolis — New York — Philadelphia Pittsburgh — Portland, Ore. — San Francisco — Seattle — St. Louis — Washington. Resident Representatives: Albany — Atlanta — Baltimore — Charlotte — New Orleans — Richmond, Va. — Salt Lake City
CROUSE-HINDS COMPANY OF CANADA, LTD. TORONTO, ONT.

**AIRPORT LIGHTING · FLOODLIGHTS**

# YOU'RE NEVER IN A "BIND" WITH THE Lufkin Line

## TORNADOES TWISTERS AND STORMS

never interfere with the operation of a LUFKIN pumping unit. These compact, rugged units carry on when weaker substructures and derricks topple with a crash.

These pictures were made after a recent tornado in the Shawnee Lake area near Shawnee Lake, Oklahoma. Derricks were twisted and ripped apart — concrete blocks and reinforcing pipe were wrenched from the ground and tossed 20 feet or more away from the holes when the superstructure toppled, but the good old LUFKINS carried on.

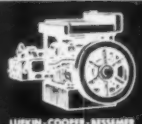
For dependable, efficient, year-in, year-out service always specify LUFKIN pumping units.

**LUFKIN FOUNDRY & MACHINE COMPANY**
**LUFKIN, TEXAS**

*Branch sales and service* Houston, Dallas, New York, Tulsa, Los Angeles, Seminole, Oklahoma City, Corpus Christi, Odessa, Kilgore, Wichita Falls, Casper, Wyoming; Great Bend, Kansas.

More than 60,000 complete gear reducers and increasers have been manufactured in our Lufkin plant. The complete line specifications are contained in Catalog G-1. Write for your copy today. No obligation whatsoever!

LUFKIN PUMPING UNITS



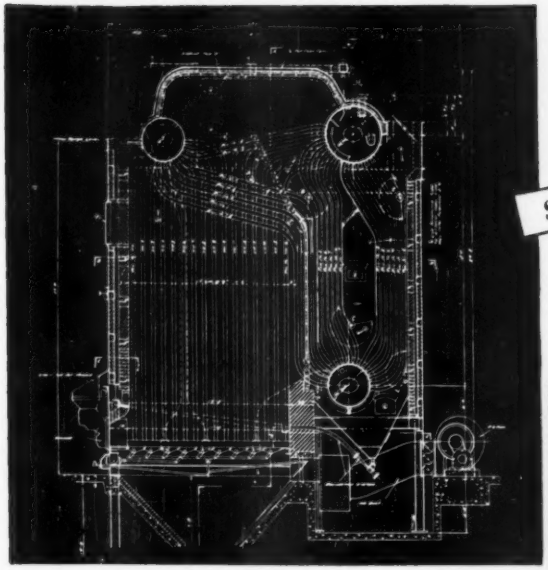
LUFKIN-COOPER-BESSEMER ENGINES

LUFKIN OIL FIELD AND INDUSTRIAL TRUCK TRAILERS

INDUSTRIAL SPEED REDUCERS AND INCREASERS

DIVISION LUFKIN FOUNDRY & MACHINE COMPANY
INDUSTRIAL, MILL AND AUTOMOTIVE SUPPLIES

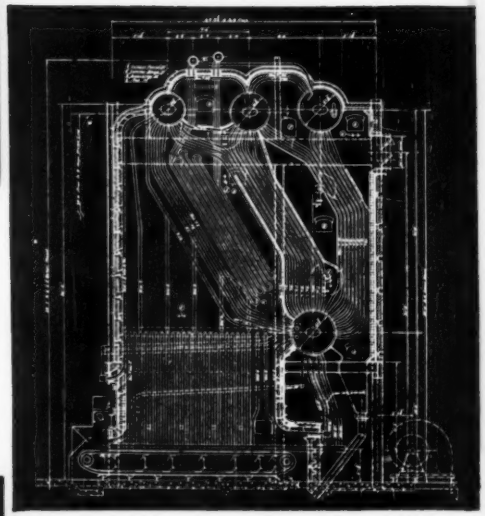
# Quick Steaming at all Ratings!



**Carry high overloads with high efficiency**

**SPECIFY Vogt**

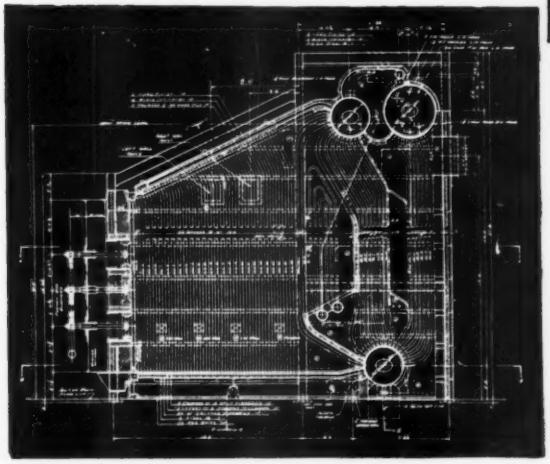
**STEAM GENERATING UNITS**



**CLASS VL** Two 27,500 pounds per hour units, installed at Brown-Forman Distillers Corporation, Louisville, Ky. Features large furnace volume in limited space, with high ratio of radiant heating surface.

**CLASS LE** Mt. Carmel Public Utility, Mt. Carmel, Illinois, is served by this 60,000 pounds per hour unit. Generous steam liberating surfaces and steam space permit wide fluctuations in load.

**CLASS VR** 70,000 pounds per hour steam generator at Humble Oil and Refining Company, Johnsue, Texas. An efficient, high-duty unit with water cooled furnace, using refinery gas fuel.



Vogt builds a complete line of bent tube steam generators, designed to burn solid, liquid, or gaseous fuels to meet specific operating conditions. Superheaters, air preheaters, economizers, water walls, and soot blowers can be readily incorporated. Bulletins with general information and showing typical installations are available upon request.

## HENRY VOGT MACHINE CO.

**LOUISVILLE 10, KENTUCKY**

BRANCH OFFICES:
NEW YORK, PHILADELPHIA, CLEVELAND
CHICAGO, ST. LOUIS, DALLAS

# Thread 2" pipe in 22 seconds with TOLEDO POWER PIPE MACHINES!

● *You can save up to 80% on pipe threading time*—by using a portable TOLEDO No. 999 Power Pipe Machine instead of hand methods! This saves labor . . . reduces costs!

The Super Model threads 2" pipe in 22 seconds . . . or 30 seconds with Standard Model. Cuts off 2" pipe in 10 seconds. Combines speed, production, strength, compactness, portability, dependability and low cost! Ask your distributor for complete details and price. Write for new catalog. The Toledo Pipe Threading Machine Co., Toledo, Ohio. New York Office: 165 Broadway, Room 1310.

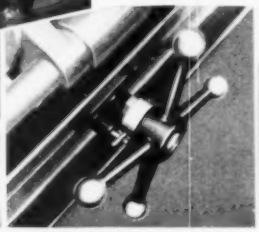
**RELY ON THE LEADER**

**TOLEDO**

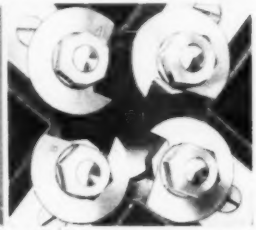
**FOR PRECISION PIPE TOOLS**

**CONTROLS**...entirely within forward and reversing switch. Speed adjusted automatically.

**REAMING** . . . with 12 tooth cone type fluted reamer mounted on arm on cutter head.



**THREADING** . . . speedy, accurate. Thread gauge shows length of thread being cut.



**CUTTING** . . . especially fast with 4 cutting knives. Perfect square end cuts. No burred edges.

# How TIMKEN® bearings help this brake pay for itself

THE Hydromatic Brake shown below is used in drilling rigs to completely control the lowering of loads while they are in motion. It permits mechanical brakes to be used only for the actual stop, and for holding and feeding. In 10,000 feet of drilling, it pays for itself through savings on maintenance of the mechanical brakes, according to the makers—The Parkersburg Rig & Reel Company.

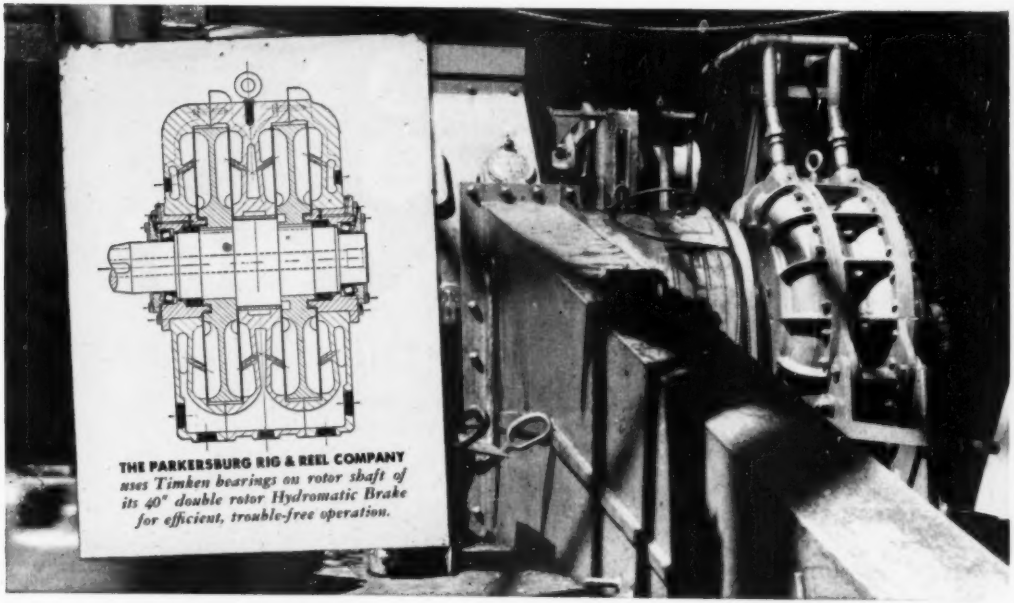
To keep the Hydromatic Brake working smoothly and efficiently, the rotor shaft is mounted on Timken® tapered roller bearings. The Timken bearings hold the shaft in rigid alignment under the heaviest loads, yet allow it to turn freely by cutting friction to the bone.

Timken bearings eliminate deflection and end-play, prevent wear on adjacent parts, require a bare minimum of maintenance, and normally last the life of the machine.

That's insured by the way Timken bearings are designed and made. Their tapered design takes radial, thrust and combination loads. Line contact between rolls and races gives them tremendous load capacity. They are made of especially tough, wear resistant Timken fine alloy steels and manufactured to extreme accuracy.

Make sure you get *all* the advantages a bearing can give by insisting on Timken tapered roller bearings in the machines you build or buy. Look for the trade-mark "Timken". The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

*This symbol on a product means its bearings are the best.*


THE PARKERSBURG RIG & REEL COMPANY
uses Timken bearings on rotor shaft of its 40" double rotor Hydromatic Brake for efficient, trouble-free operation.

**NEW TIMKEN BEARING CUTS RUN-OUT IN HALF!**

Until now, the Timken "Zero" bearing has been the last word in bearing accuracy. Now Timken offers industry the "Double-Zero" bearing—*twice as accurate* as the "Zero"! Maximum run-out of the new "Double-Zero" bearing is only 75 millionths of an inch—*half* the 150 millionths run-out of the "Zero" bearing.

What an opportunity for manufacturers of machines where extreme accuracy is essential! Available in standard single row types, up to 10" O.D. Write for further information.

**TIMKEN**

TRADE MARK REG. U. S. PAT. OFF.

**TAPERED ROLLER BEARINGS**

NOT JUST A BALL ◯ NOT JUST A ROLLER ⊂⊃ THE TIMKEN TAPERED ROLLER ⊂⊃ BEARING TAKES RADIAL ◫ AND THRUST →◫← LOADS OR ANY COMBINATION →✳←

## FOR IMMEDIATE SHIPMENT — CALL METAL GOODS

Now you can put corrosion-resistant Monel* Heat Exchanger Tubing to work for you — without delay! A stock of ¾" OD x 0.065" (16 BWG) and 0.083" (14 BWG) wall x 16' long Monel* Tubing is on hand for fast delivery from our Houston warehouse.

Where high corrosion resistance plus strength and toughness are needed . . . count on Monel* for *all* these advantages:

- **Readily fabricated, and expanded into Tube Sheets.**
- **High resistance to hydrogen sulfide, hydrochloric acid, sulfuric acid and brine. Withstands hydrofluoric acid in HF alkylation.**
- **Resists effects of cavitation and impingement.**
- **Stands up in caustic soda reboilers and in condensers for chlorinated solvents and furfural.**

***For shipment TODAY . . . phone, wire or write your nearest Metal Goods warehouse.***

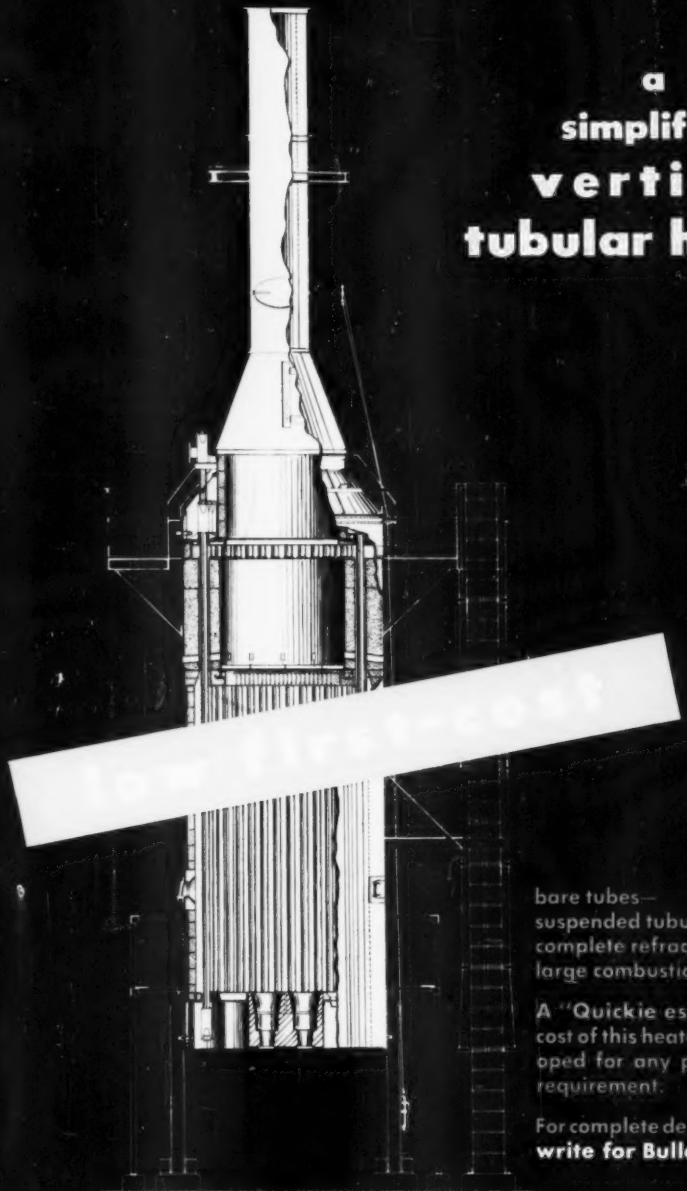
*Reg U S Pat Off

MGC

**METAL GOODS CORPORATION**

OFFICES AND WAREHOUSES: St. Louis, 5250 Brown Ave. • Houston, 711 Milby St. • Tulsa, 302 N. Boston New Orleans, 432 Julia St. • Dallas, 6211 Cedar Springs Rd. • Denver, 817 17th St., • Kansas City, 1300 Burlington

# a simplified vertical tubular heater



bare tubes—
suspended tubular structure—
complete refractory lining—
large combustion volume—

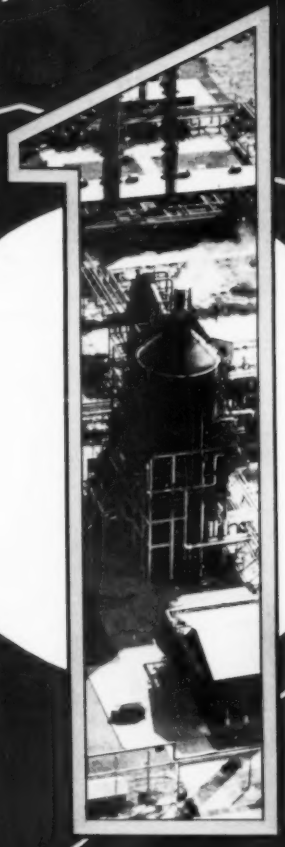
A "Quickie estimate" of the cost of this heater can be developed for any process heating requirement.

For complete description:
**write for Bulletin 0-49-7.**

FOSTER WHEELER CORPORATION

165 BROADWAY, NEW YORK 6, NEW YORK

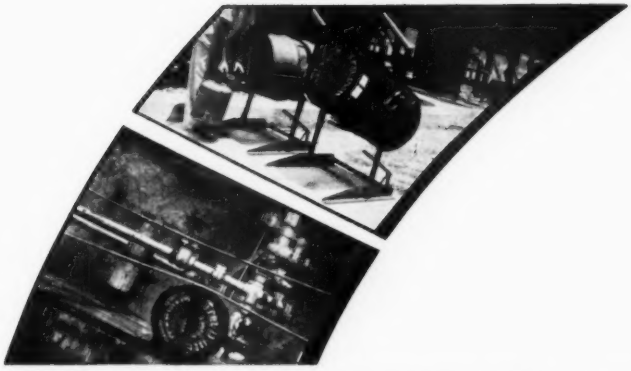
one . . . complete . . . engineering and construction service



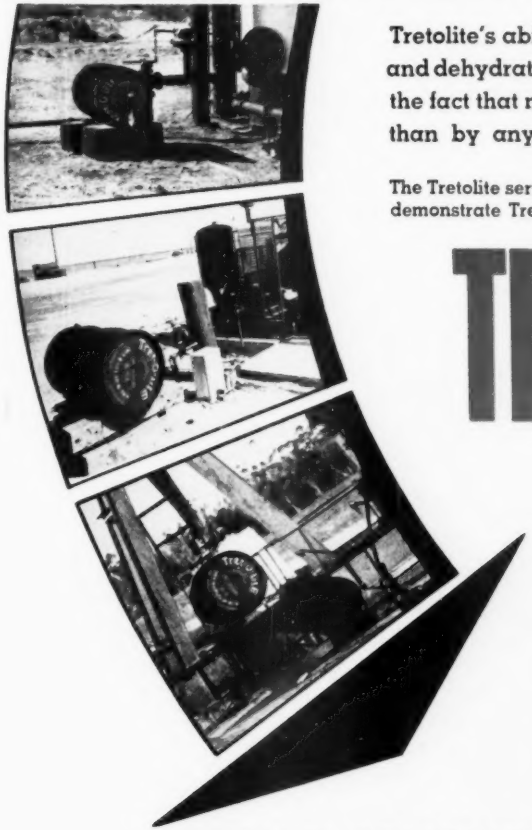
complete petroleum
refineries and
chemical plants

one contract
one contractor
one constructor

FOSTER WHEELER CORPORATION
165 BROADWAY, NEW YORK 6, NEW YORK



# RECOGNIZED ABILITY



**Tretolite's ability to provide the maximum in service and dehydrating effectiveness is demonstrated by the fact that more oil is treated by Tret-O-lite than by any other dehydrating method.**

The Tretolite service engineer in your field will be glad to demonstrate Tret-O-lite's effectiveness—just call him.

# TRET·O·LITE

## TRETOLITE COMPANY

*Manufacturing Chemists*

ST. LOUIS 19, MISSOURI • LOS ANGELES 22, CALIFORNIA

DEHYDRATING | DESALTING

# Check and Double Check

**To check and double check your hole to keep it on perpendicular, use the Sperry-Sun E-C Inclinometer. It provides a fast, accurate, reliable check to a fraction of a degree.**

**It is run on wire line, core barrel overshot, inside bailer or can be Go-Deviled.**

***You double check a reading on a single run by lifting the E-C several feet and lowering again for another reading. When Go-Deviled, a slight turn of the drill pipe gives an accurate double check.***

**The E-C Inclinometer operates on dry cell batteries and provides multiple records on a single trip. No developing is necessary and the record reads directly in "degrees off vertical" with a range of 6 degrees. No false reading is possible, for the plumb-bob pendulum in the instrument must come to a complete rest for one minute or more before it will record.**

**E-C Inclinometers are available on a low-cost lease-rental basis and are factory maintained. Get straight-hole insurance, be doubly sure that your hole is right on perpendicular —call our nearest service engineer for immediate service.**

**SPERRY-SUN WELL SURVEYING COMPANY**

**3118 BLODGETT AVENUE HOUSTON, TEXAS**

Philadelphia, Pa. Falfurrias, Texas Odessa, Texas Marshall, Texas Long Beach, Calif. Oklahoma City, Okla.
Lafayette, La. Bakersfield, Calif. Moulden Oil Field Services, Casper, Wyo. Crossville, Illinois

# BETTER . . . . BECAUSE THEY'RE MODERN-TO-THE-MINUTE

For nearly half a century, Continental Motors has been a recognized leader in the world of internal combustion power. As a result of a continuing program of research and development, intensified during and since the war, today's line of Continental Red Seal engines for oil field use is up-to-the-minute mechanically, as well as broader and more diversified than ever before. Continental builds one or more models engineered to the specialized needs of practically all oil field applications requiring up to 170 horsepower. And you may be sure of one thing: no other engine built today will give longer service, with less time out, than the modern-to-the-minute Red Seal model engineered and built for your job.

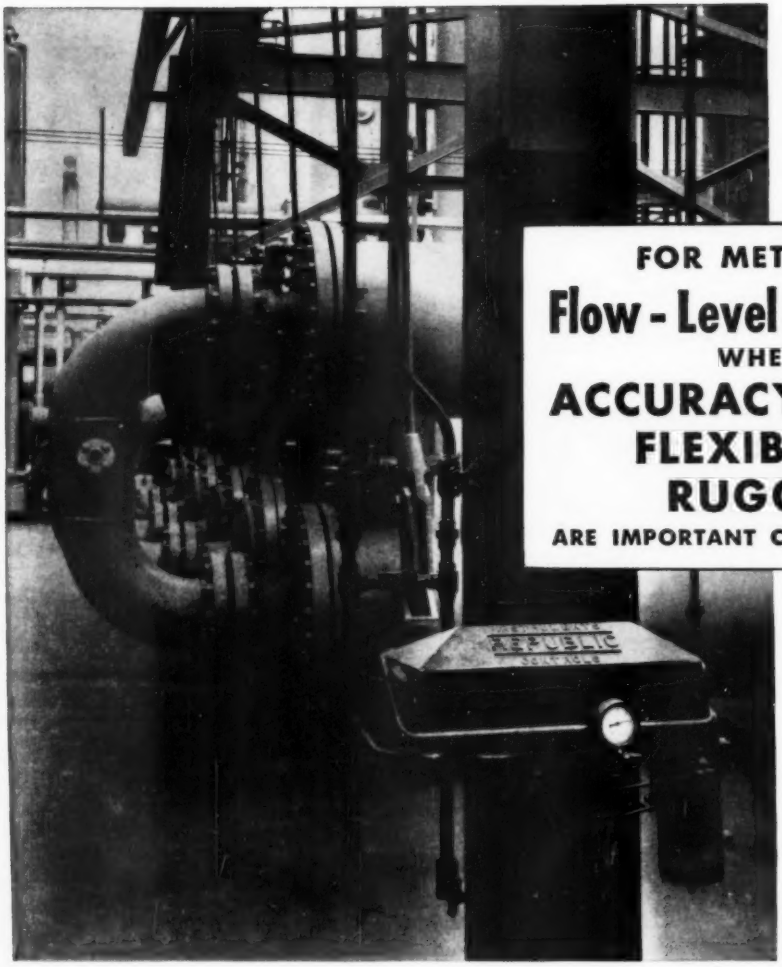
CONTINENTAL MOTORS ★ Powerful as the Nation ★ AMERICA'S STANDARD

**Continental Motors Corporation**
MUSKEGON, MICHIGAN
6218 CEDAR SPRINGS ROAD • DALLAS 1, TEXAS

*Write for free bulletins. Please mention specific application for which power is needed. Continental Motors engineers will gladly help you with your power problems.*

**Model R-600**
**Closed Power Unit**

Overhead valve type; 65 to 110 shaft h.p. for continuous duty; 75 to 140 h.p. for intermittent duty.




**FOR METERING**

# Flow - Level - Pressure

**WHERE**

**ACCURACY**

**FLEXIBILITY**

**RUGGEDNESS**

**ARE IMPORTANT CONSIDERATIONS**

*One of a group of Republic transmitters metering flow and level in a modern chemical processing plant.*

Republic Pneumatic Transmitters are available for measuring flow, liquid level, pressure or liquid density of a wide range of fluids. They employ the force-balance principle to convert these process variables into air pressures which vary proportionally. These air pressures become direct measurements and can be conducted to reading instruments or used as the measuring impulse for the actuation of an automatic controller.

Republic transmitters have a guaranteed accuracy of within 1/2 of 1% of the transmitter range. By making a few minor adjustments or substituting a few small parts, their operation can be easily changed to any desired range between a minimum of 0-0.6" to a maximum of 0-704" of water. Their construction is more like that of a precision machine than of the sensitive instrument they are. Data Book No. 1001 contains complete details — write for your copy.

**REPUBLIC FLOW METERS CO.**

**2240 Diversey Parkway, Chicago 47, Illinois**

# PB CASING PROTECTORS INSTALLED FROM TRANSFER SLEEVE TO DRILL PIPE IN LESS THAN FOUR SECONDS!

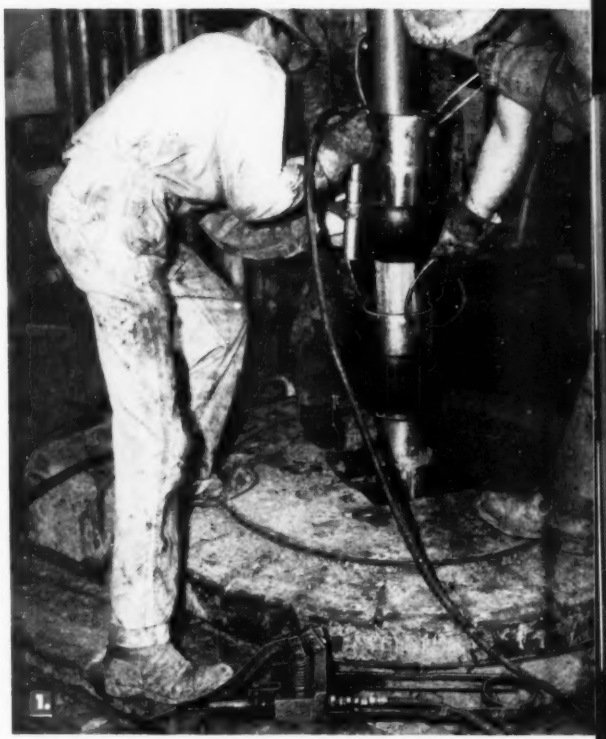
## PB engineers fastest protector installation tools

NOW AVAILABLE—PB's new lightweight hydraulic equipment installs protectors in a fraction of the time previously required . . . *from transfer sleeve to drill pipe in less than 4 seconds!*

One man can install protectors on drill pipe wherever or whenever needed—going into or coming out of the hole without breaking joints of a stand—or on the rack at your yard or at the rig.

This combination of PB "Field Proven" Protectors and new PB Hydraulic Push-Off Installation Service means *full* protection plus *money saved.* You save rig time—get on bottom quicker!

***For a demonstration of this "years ahead" PB engineered installation equipment call your PB representative now.***



1.

2.

3.

**1.** New PB Hydraulic Push-Off Tool operated by PB service man while the crew is running pipe. Three strokes of the Push-Off Tool (controlled by foot pedal) give a hydraulic jack action which transfers the protector from sleeve to drill pipe in less than 4 seconds.

**2.** PB Protectors installed on racked pipe. Note how Push-Off Tool pump pedal is operated by hand.

**3.** Polished cone serves as expanding surface as the protector is hydraulically put on the transfer sleeve. New PB equipment is exceptionally light in weight—unloaded transfer sleeve for 4½" drill pipe weighs only 9¾ lbs.! This allows easy, quick handling by installation man.

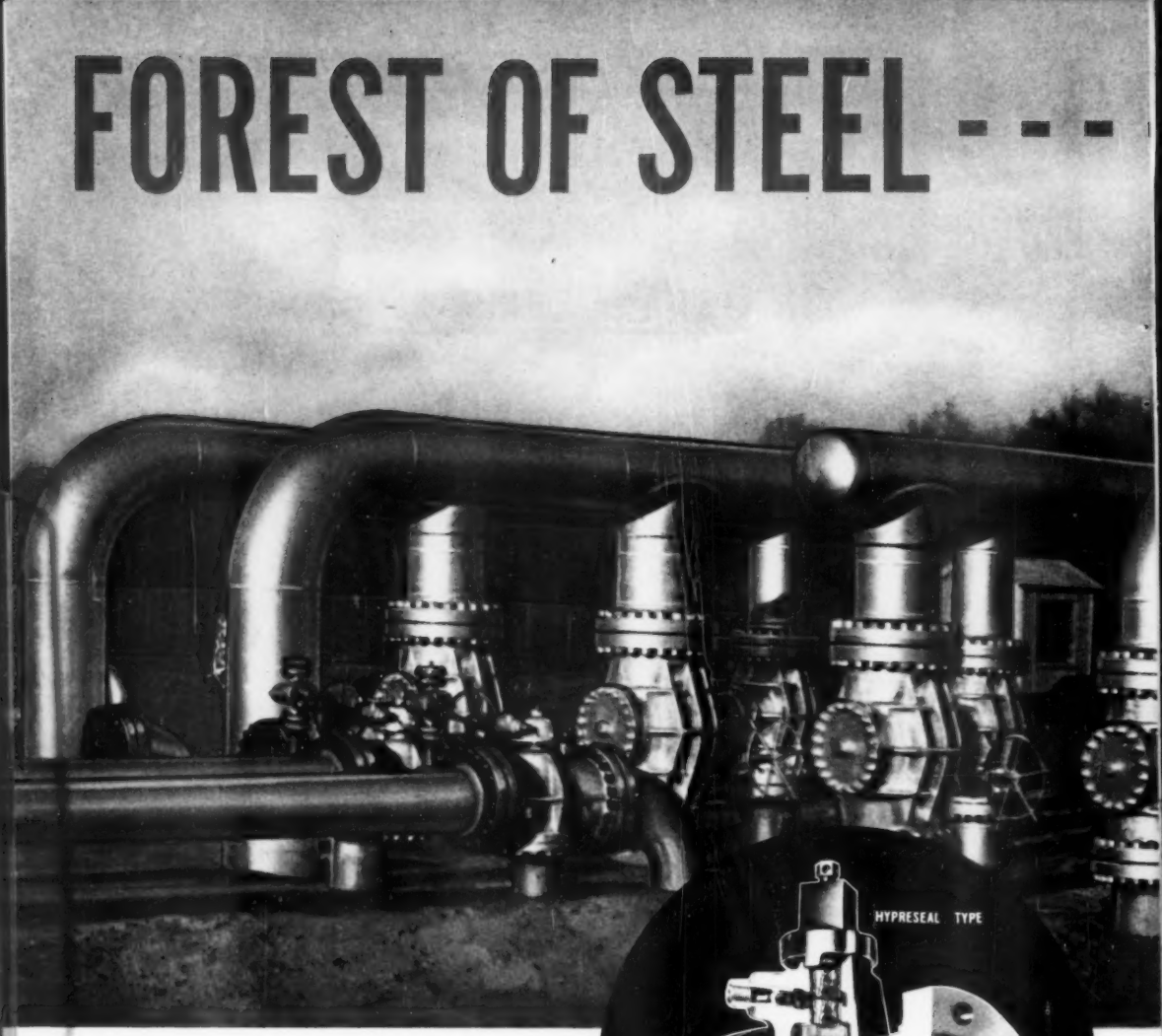
PB

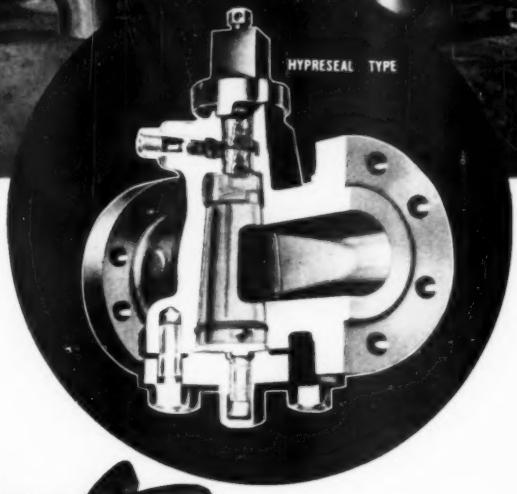
**Patterson-Ballagh**

*Division of Byron Jackson Co.*

**MAIN OFFICE: 1900 East 65th Street**
**Los Angeles 1, California**

# FOREST OF STEEL - - -



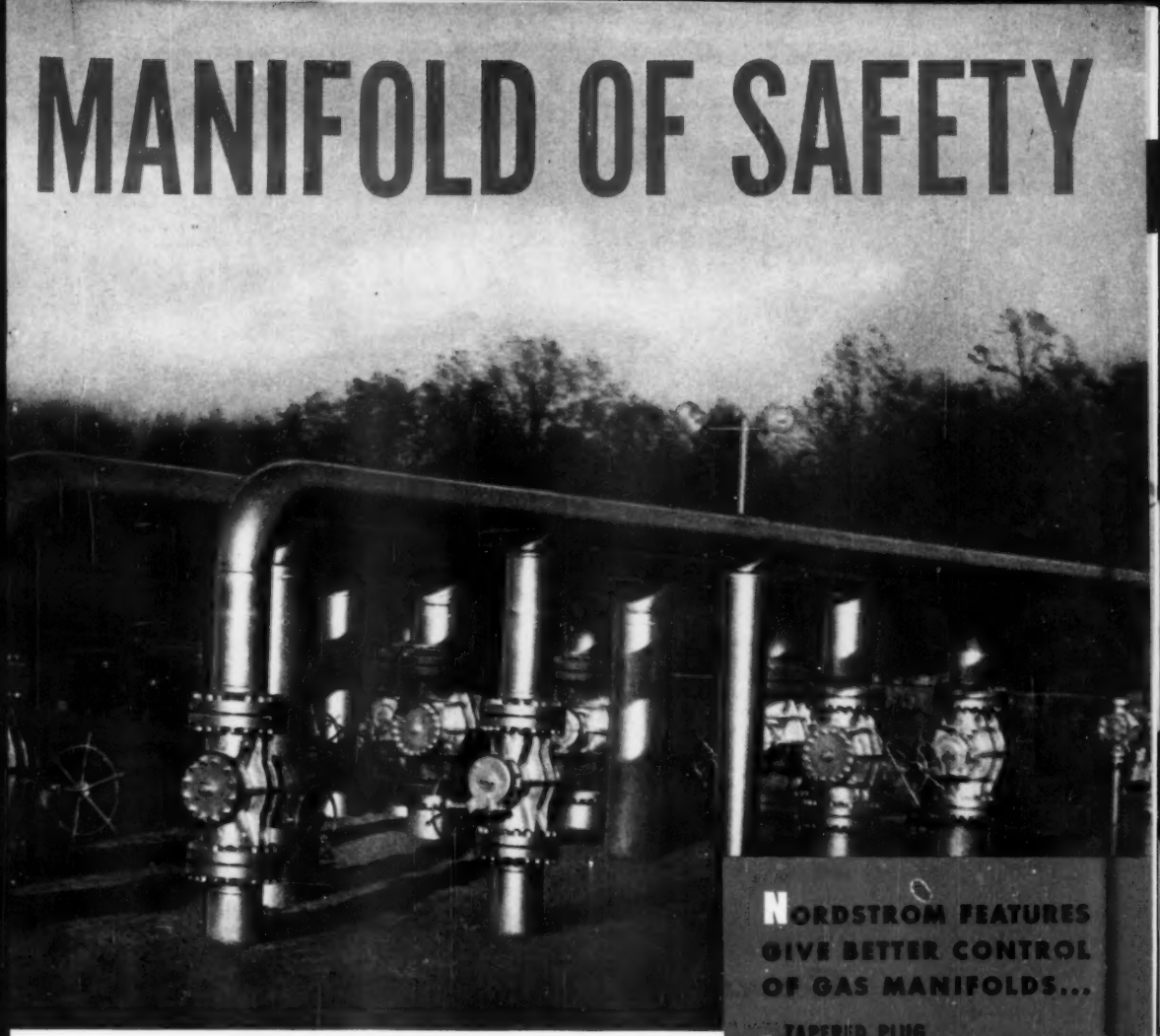



Good engineering as reflected in this mighty manifold makes Nordstrom selection a certainty.

# Nordstrom

**NOW AUTOMATICALLY LUBRICATED WITH** Hypermatic TRADE MARK

# MANIFOLD OF SAFETY



Satisfactory manifold operation demands quick switching, absolute certainty of full closure and ease of operation. When you install Nordstroms you can set your mind at ease—they give you every advantage of speed in operation and 100% safety. *Keep upkeep down.*

## Valves

*Nordstrom Valve Division* — **ROCKWELL MANUFACTURING CO.**
**400 North Lexington Avenue • Pittsburgh 8, Pa.**
Atlanta, Boston, Chicago, Columbus, Houston, Kansas City, Los Angeles, New York, Pittsburgh, San Francisco, Seattle, Tulsa . . . and leading Supply Houses
Export: Rockwell Manufacturing Co., International Division, 7701 Empire State Building, New York 1, New York

ROCKWELL

**NORDSTROM FEATURES GIVE BETTER CONTROL OF GAS MANIFOLDS...**

- **TAPERED PLUG** *for constant seating.*
- **PRESSURIZED LUBRICATION** *—for positive sealing, ease of turning and locking of plug.*
- **UNEXPOSED SEAT** *—for protection from line fluids.*
- **REPACKABLE UNDER PRESSURE** *—for avoiding line shut-down.*
- **MOST COMPACT DIMENSIONS** *—for close setting in limited space.*
- **POSITIVE ROTARY ACTION** *—for certainty of action.*
- **SIMPLE QUARTER TURN** *—for quickest operation.*

**...and now**

- **HYPERMATIC LUBRICATION** *—for continuous lubrication and reduced maintenance.*

# CLEVELANDS *are*
## PREFERRED BY HUNDREDS OF PIPELINERS
## *for* THEIR TRENCHING JOBS

*Because of Their...*

**DEPENDABILITY — EASE OF OPERATION and ECONOMY**

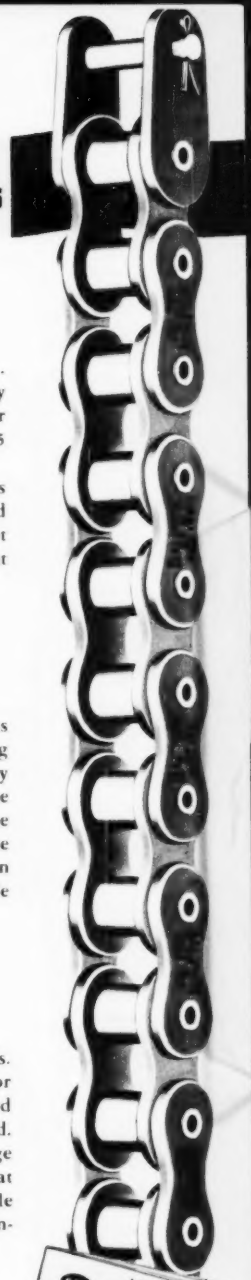
CLEVELANDS on the trenching jobs—main lines, distribution lines, service lines, gathering lines, stripping pipe—can be depended on to deliver maximum profitable performance. The proof is in the records. CLEVELANDS have the stamina, power and strength to dig in and lick the toughest going over the most rugged terrain and through the meanest soils. They have the exceptional maneuverability to assure ease of operation in the tightest places and a wide range of transmission-controlled speed combinations giving under all conditions the best and fastest speed for the work at hand. Add to this low fuel consumption and minimum maintenance and you'll know why oil field owners depend on and swear by their CLEVELANDS.

**THE CLEVELAND TRENCHER CO.**

**20100 ST. CLAIR AVENUE • CLEVELAND 17, OHIO**

# Easy does it...

**with the NEW "BA" Riveted Oil Field Roller Chains**

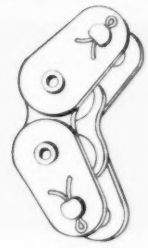


## EASY TO TAKE APART

The radically different single pin connector link of "BA" . . . Baldwin Assembly . . . Riveted Oil Field Roller Chain makes it easy to take apart or assemble the chain. Readily distinguished by their "teardrop" shape, two single pin connectors are located in each 5 feet of chain.

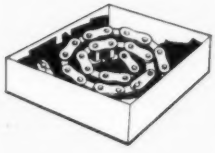
One end of the special pin is spun over a washer . . . the other has a milled flat which fits into a special hole in the connector plate and is secured by a cotter. The pin is a slip fit through the link except for the milled flat end. Thus, it is easy to drive out the pin without damaging chain parts.

## EASY TO REPAIR AND ADJUST



In addition to the ease of assembly and disassembly, "BA" Chains make adjustment and repair easy. A 3-pitch repair unit consisting of a standard roller link and two single pin connector links is easy to couple into a chain strand. Since most repair jobs require the trimming out of at least one pin link and one roller link, the 3-pitch repair unit offers the most convenient way to couple the chain strand. BUY THEM NOW. Keep a standard repair link on hand for every roller chain drive on your rig. Interchangeable with any standard roller chain.

## EASIER, FASTER SERVICE



The "BA" Assembly is shipped in boxes in standard 5-foot lengths. Each basic length has 2 single pin connectors. Thus, it's easy for your supply store to *build up* from the basic lengths, plus standard smaller assembly sections, the *exact* length of chain required. There is no need to cut the riveted chain with consequent damage to press fits and chain parts. In addition, it is recommended that offset links be assembled at 5-foot intervals following the single pin connector links. These offsets can be removed easily to compensate for normal chain elongation.

*With "BA" Assembly, you get the longer life and lower cost of riveted roller chain plus amazingly easy assembly and disassembly.*

**BALDWIN·REX**

**ROLLER CHAINS**

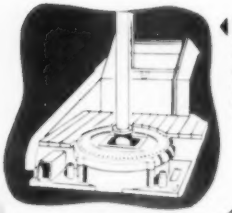
**a complete line from ¼-inch to 2½-inch pitch**

*For all the facts on the "BA" Assembly, Rex A.P.I. Chains and Rex Oil Field pumps, see your local supply store or write for your copies of Bulletins 49-29 and 47-12. Chain Belt Company, 1619 West Bruce Street, Milwaukee 4, Wis.*

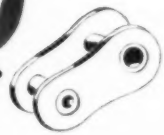
PRINTED IN U. S. A.

# REX OFFSET SIDE BAR ROLLER CHAINS

## *for the Tough, Dirty Drilling Jobs*



*Rex Offset Side Bar Roller Chains can accommodate minor misalignments . . . operate efficiently in dusty, dirty locations.*



*Rex Offset Side Bar Roller Chains have highly finished parts, held to close tolerances.*

*Rex Offset Side Bar Roller Chains are stocked in boxes in convenient 10-foot lengths.*

*Rex Offset Side Bar Roller Chains are easy to couple . . . to alter length by one or more pitches.*

Rex Offset Side Bar Roller Chains were "born in the oil fields" . . . designed to answer the need for a chain for exposed drives where conditions of dust, dirt or occasional misalignment make standard roller chains unsuitable.

These chains are designed with built-in clearances between working parts that enable the chain to stand up under adverse operating conditions. The rotary table drive, for example, is typical of the type of service where Rex Offset Side Bar Roller Chains are the ideal answer.

These chains are similar to the famous Rex A.P.I. Chains in general appearance . . . have the same basic offset side bar construction. However, they are built to the same close tolerances, to the same finishes and dimensions of standard roller chains. The offset design makes it easy to alter the length of chain by one or more pitches at any point in the chain.

# REX OIL FIELD PUMPS

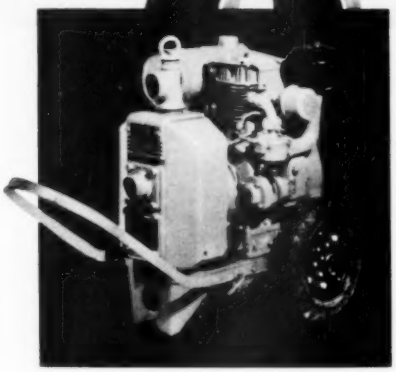
## *the Little Yellow Pumps That:*

You find everywhere in the oil fields, doing everything from dewatering ditches to salvaging oil from the pits.

The exceptional all-round portability of these handy self-priming centrifugals, plus their outstanding durability and efficiency, makes them the top choice for oil field utility service.

Pump body is pressed steel that's unbeatable for durability . . . can be repaired by welding. The exclusive Rex adjustable "air peeler" and replaceable wearing plate assure new pump efficiency for the lifetime of the pump. All these *plus* advantages mean better service with less maintenance and repair costs to you.

Rex Oil Field Utility Pumps are available in a range of capacities to fit every oil field service.



**Rex Oil Field Sales Offices Are Located in the Following Cities:**
NEW YORK • TULSA • DALLAS • HOUSTON • MIDLAND • LOS ANGELES

# CHAIN BELT COMPANY

**BALDWIN-DUCKWORTH DIVISION**
Springfield 2, Mass.

**REX CHAIN & TRANSMISSION DIVISION**
Milwaukee 4, Wis.

**REX CONSTRUCTION MACHINERY DIVISION**
Milwaukee 4, Wis.

# THIS BIG JOB...

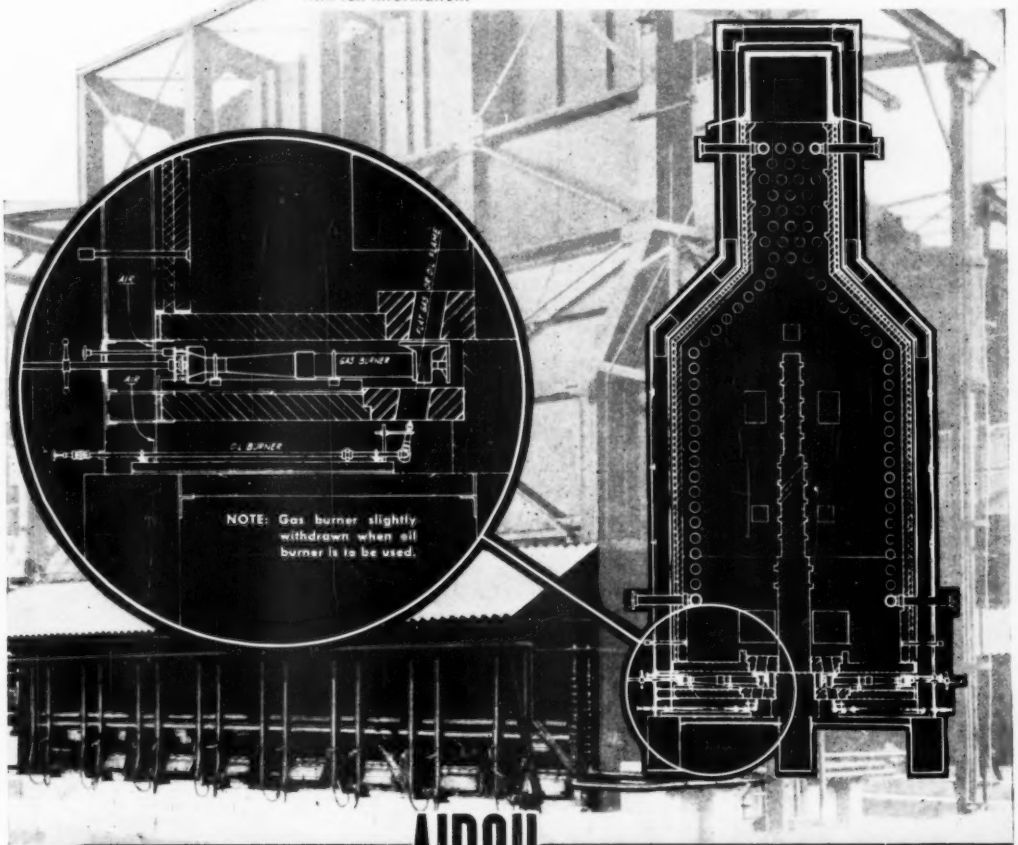
## ..FIRED WITH 32 SPECIALLY DESIGNED *TANDEM* UP-FIRED OIL BURNER UNITS

Yes, another *special* job by "National Airoil." The two large crude oil heaters, as illustrated, of the floor-fired, center-wall up-draft type, are each equipped with sixteen of our flat flame oil Tandem Combustion Units . . . to obtain an even distribution of heat to all radiant wall tubes with high fuel economy.

And these crude oil heaters have been continuously and easily operated at considerably above their specified designed capacity.

Specializing in the unusual, we of "National Airoil" have a *complete line* of gas and oil burners for any design of up-fired furnace.

Ask us about your particular installation or problem . . . we'll gladly comply with full information.




**NATIONAL AIROIL BURNER CO., INC.**

***Main Offices & Factory:*** **1236 EAST SEDGLEY AVENUE, PHILADELPHIA 34, PA.**
*Southwestern Division:* 2512 South Boulevard, Houston 6, Texas

**INDUSTRIAL OIL BURNERS, GAS BURNERS, FURNACE EQUIPMENT**

# Twin Disc Clutches *on this job, too!*

*Twin Disc Model CL Clutch*

There are four Twin Disc Model CL Clutches in the Winter-Weiss Portadrill transfer case. The Portadrill is used mainly for exploratory drilling and shallow oil production.

Exploratory drilling calls for speed . . . portable rigs that must move fast and drill fast.

Fast drilling demands a fast-acting clutch . . . like Twin Disc's Model CL. The CL is a heavy-duty friction clutch, yet small and compact . . . designed for high-speed installations demanding easy engagement and disengagement.

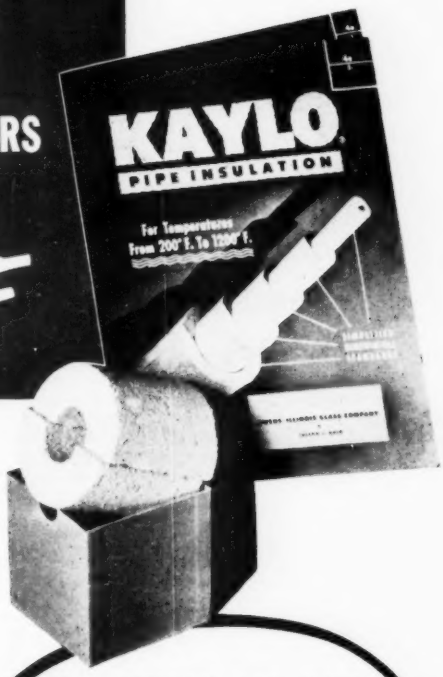
Overall dimensions are held to a minimum to conserve space. Action parts are hardened and ground. Wide friction surfaces are used. High grade molded asbestos friction material and highly finished surfaces on the clutch plates reduce wear to a minimum and assure smooth positive operation.

Twin Disc Model CL Clutches are available in one, two and three plate models, 5.5″ to 11.5″, with working capacities ranging from 12 to 125 hp. For complete information, write for Bulletin 120-C. TWIN DISC CLUTCH COMPANY, Racine, Wisconsin (Hydraulic Division, Rockford, Illinois).

SPECIALISTS IN INDUSTRIAL CLUTCHES SINCE 1918

# NOW!

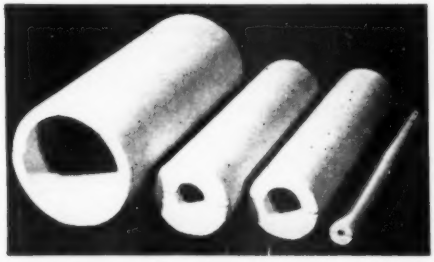
## One PIPE INSULATION COVERS TEMPERATURES FROM 200°F. to 1200°F.




# KAYLO®
## PIPE INSULATION

Here's a real advance in pipe insulation you should know about—the broad adaptability of Kaylo Pipe Insulation in serving a 1000° range of temperature requirements. To get a Kaylo Pipe Insulation sample and descriptive folder, fill in and send the coupon below. These are some of the reasons you'll be interested:

- Kaylo Pipe Insulation offers remarkable efficiency from 200° up through 1200°. It withstands effects of vapor and water.
- Simplified Dimensional Standards of thicknesses and diameters allow snug-fitting nesting of successive layers, when necessary—simplify installation and permit minimum inventories.
- Easy to handle and apply, this strong, lightweight insulation can be cut, scored and sawed with standard tools.
- The experiences of varied industries with millions of feet of Kaylo Pipe Insulation attest to its wide-range efficiency and long service capacity.



Kaylo Pipe Insulation is available in nominal thicknesses from 1 to 3 inches in 36-in. sections, for pipe sizes from ½ inch to 12 inches. Kaylo Insulation is also available in block and lagging form.

**MAIL COUPON FOR KAYLO PIPE INSULATION SAMPLE AND DESCRIPTIVE FOLDER**

This new folder tells you all about Kaylo Pipe Insulation—the available sizes and recommended thicknesses for various temperatures; physical characteristics; efficiencies, and heat losses.

**OWENS-ILLINOIS GLASS COMPANY**
**Kaylo Division** **Toledo 1, Ohio**

**SALES OFFICES AT:**

| | | |
|---|---|---|
| Atlanta | Cincinnati | Philadelphia |
| Boston | Dallas | St. Louis |
| Buffalo | Minneapolis | Toledo |
| Chicago | New York | Washington |

**Owens-Illinois Glass Company — Kaylo Division**
**Dept. N-80, Toledo 1, Ohio**

Gentlemen: Please send me a Kaylo Pipe Insulation sample and descriptive folder.

NAME.....

FIRM.....

ADDRESS.....

CITY.....STATE.....

# Its Grand-Dad was a Wheelbarrow!

## How Petroleum Research helps the Engineer Contractor

Looking like prehistoric monsters, modern earth-moving goliaths gobble up tons in the time Joe and his barrow moved pounds. Petroleum fuels and special lubricants speed their work—one of the triumphs of petroleum research.

*Digging sand, laying concrete, breaking rock, excavating and construction machines must be lubricated to withstand exposure to heavy strain, shock, dust, mud and abrasives.*

Giant power shovels, buckets, scrapers, bulldozers, literally move mountains to span the nation with roads, build dams, levees and foundations. By its research in improving gasoline engine performance, in providing lubricants that helped make the Diesel engine practical and economical, by providing efficient machine lubricants to operate under the severe conditions of mud, water, sand, heavy loads and shock, the petroleum industry has contributed to their achievements—a field in which Texaco has played a vitally important part.

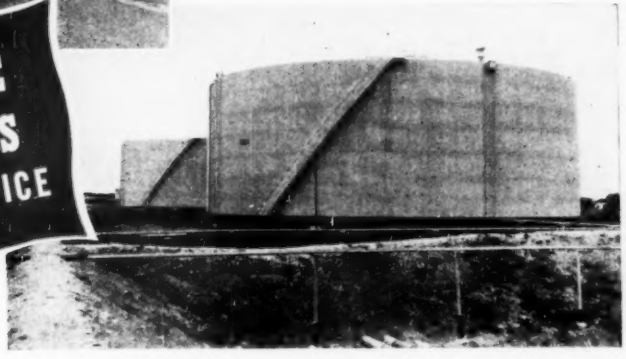
**THE TEXAS COMPANY**

***Petroleum Promotes Progress***

TEXACO

- 22 welded steel tanks under construction at Corpus Christi, Texas, for Southwestern Oil & Refining Company.
- Two 150,000 barrel (150' x 48') welded steel tanks for Taylor Refining Company, Corpus Christi, Texas.
- Two of four 96,000 barrel (120' x 48') welded steel tanks for Pontiac Refining Company, Corpus Christi, Texas.

**ELLERBEE BROTHERS**
**TANK ERECTION SERVICE**



# PERSONAL SUPERVISION
## ADDS THE FINISHING TOUCH TO EVERY ELLERBEE JOB

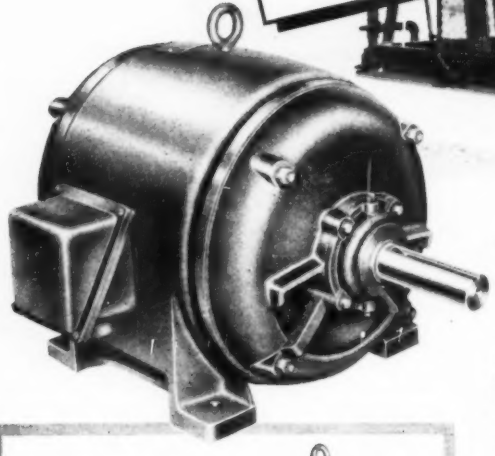
These three jobs are typical of the tank erection service Ellerbee Brothers offer the oil industry.

We furnish and erect all sizes of storage tanks . . . welded or riveted, steel and aluminum. We repair, dismantle, move and re-erect riveted and welded storage tanks, refinery equipment and pipe installations. We fabricate and erect industrial piping, steel and aluminum.

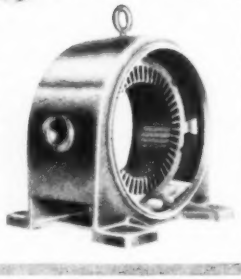
In addition, we give *your* job personal supervision during the entire period of construction. That's the finishing touch that our organization gives every job because we are small, yet experienced enough and large enough to undertake any size job. We will appreciate an inquiry on your piping and tank erection problems.

**ELLERBEE BROTHERS**
**P. O. BOX 857 — PORT ARTHUR, TEXAS**

WAGNER MOTORS
...The choice of leaders in industry



Type DP (Drip-proof) oil well pumping motor. One-piece, cast iron frame designed so that any condensation will immediately drain out of ventilating openings at bottom of motor. Gasket sealed conduit box is dust-tight and waterproof.



## ...and Wagner Oil Well Pumping Motors have plenty of it!

Electric motors that drive oil well pumping rigs need plenty of stamina. They operate under a blazing sun, in driving rain, in freezing weather. They've got to supply unfailing power, under all these conditions, day in and day out with the very minimum of maintenance and attention. Yes, oil well pumping motors *have* to be tough. That's why so many dependable Wagner Oil Well Pumping Motors are on the job in the oil fields.

Wagner polyphase motors for oil well pumping are built in three electrical types: Normal torque, normal slip; High torque, normal slip; and High torque, high slip. Any type can be provided with Drip-proof, Splash-proof, or Totally-enclosed fan cooled protective enclosures. For applications requiring single-phase motors, Wagner can furnish capacitor-type motors.

Twenty-nine branch offices, located in principal cities, are ready to help you whenever you have a motor problem. Users of Wagner Motors also profit by nationwide service facilities. Bulletin MU-185 gives information on the complete line of Wagner Motors.

WAGNER ELECTRIC CORPORATION
6389 Plymouth Ave., St. Louis 14, Mo., U.S.A.

Wagner Electric Corporation
EST. WE 1891

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

BRANCHES IN 29 PRINCIPAL CITIES

# *Spin-in*

## A STRONG JOINT...

## WITH REPUBLIC *Electric Weld* CASING

Throw your spinning line around a joint of Republic Electric Weld Casing. Signal for the power and feel those clean, full-formed threads take hold . . . fast. You're spinning-in a joint that needs only a turn of the tongs to discourage any pull-out.

With this modern tubular product, pull-out protection starts in the casing wall. Made under the advanced Republic Electric Weld Process, those walls are uniformly thick, round and sound, free from trouble-inviting weak spots. When the husky threads are cut, plenty of tough steel remains under their roots all around the pipe. They're anchored in a solid, uniform layer of tough steel that won't give way under the load of long strings.

Yes, you'll spin-in a strong joint . . . and you'll get top resistance to collapse, too. Republic Electric Weld Casing is made only from high ductility steel, fully normalized for uniform structure and cold sized for high yield strength. Specify it for complete dependability.

**REPUBLIC STEEL CORPORATION**
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, New York

Republic Electric Weld Casing and Tubing are made from flat-rolled steel, both sides of which are inspected. Thus, the surface which becomes the inside wall is free from hidden defects.

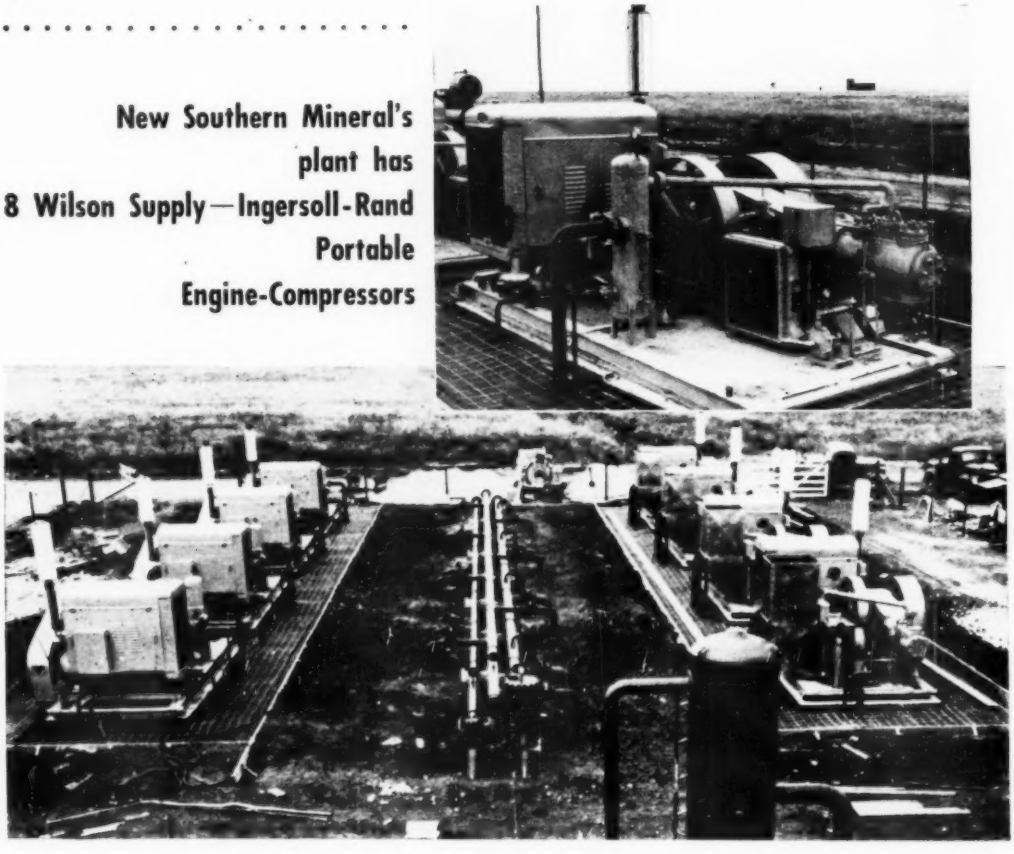
**REPUBLIC** *Electric Weld* **NORMALIZED CASING AND TUBING**

REPUBLIC STEEL

**Other Republic Products include Line Pipe—Carbon, Alloy and Stainless Steels—Upson Studs, Bolts and Nuts—Electrunite Heat Exchanger Tubes**

# *RE-PRESSURING* 6,000,000 cu. ft. of gas daily... *with* WAUKESHA POWER

**New Southern Mineral's plant has 8 Wilson Supply—Ingersoll-Rand Portable Engine-Compressors**



Southern Mineral Corporation's portable compressor station in Richard King field. *(Top)* one of Waukesha-powered high stage compressor units. *(Lower)* general view: low stage units at right, high stage at left. Sheds will cover all units, upon completion.

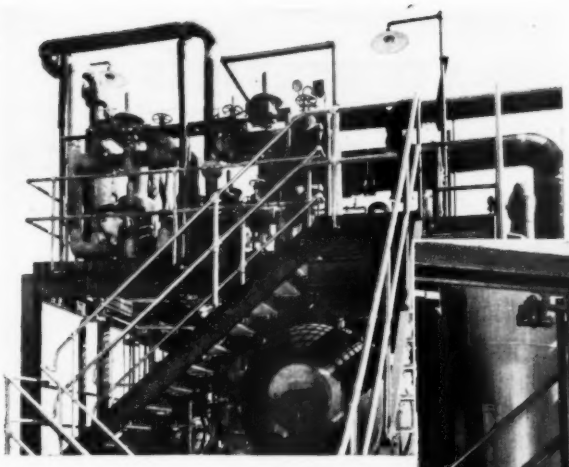
SOUTHERN MINERAL CORPORATION'S new portable compressor plant in Richard King field, Southwest Texas, is probably the largest in the U. S. Every day 6,000,000 cu. ft. of casing head gas, formerly flared, is repressured for main line transmission.

The station has eight portable engine-compressor units. Each unit is skid-mounted, with an Ingersoll-Rand single-stage horizontal compressor V-belt driven by a Model 6-WAKU, six-cylinder, 6¼-in. x 6½-in., 1197 cu. in. Waukesha Gas Power Plant developing 213 hp. at 1300 rpm. For the continuous service required in this compression plant, the speed is held to a conservative 1000 rpm. Four low stage engine-compressor units compress the gas from 50 to 200 psi.; the four high stage boost the pressure to 700 psi. (Units are identical except that low stage compressor cylinders are 9½ x 13-in.; high stage, 5¾ x 13-in.) Thus the operators are getting two-stage compression with single stage compressor units.

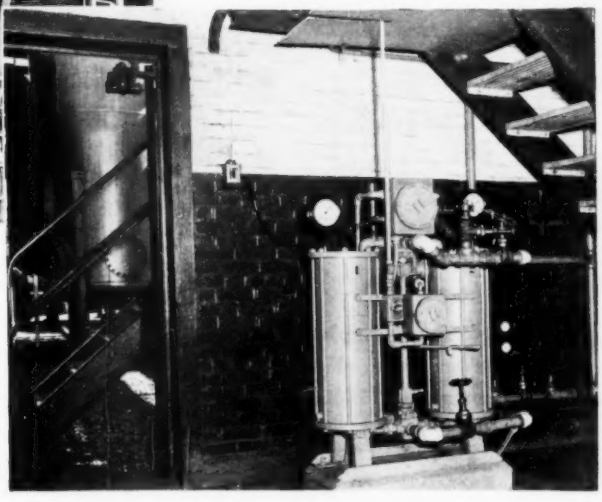
Get all the details of the 6-WAKU Waukesha Gas Power Plant. Send for Bulletin 1139.

**WAUKESHA MOTOR COMPANY • WAUKESHA, WISCONSIN**

NEW YORK • TULSA • LOS ANGELES



Type BAC-50 Lectrodryer at the Bakelite Corporation, Bound Brook, N. J., and some of the outdoor valves it protects against unwanted moisture in the air lines.



# This Lectrodryer prevents freeze-ups at BAKELITE's formaldehyde plant

No moisture gets into control and valve operating lines here to cause freeze-ups. This Lectrodryer removes the moisture from the compressed air as it comes from the high pressure lines and keeps it DRY.

Other chemical companies use Lectrodryers to DRY the air, gases and organic liquids employed in their processes. Thus, reactions are held on the straight and narrow path: output is increased, quality is upped and held high. Costs are consequently reduced.

Many areas where materials are handled or stored are supplied with DRY air from Lectrodryers. Deterioration is greatly slowed down or stopped. Work there is no longer hindered by stoppages in chutes and conveyors caused by moisture-laden materials.

Whatever your moisture problem, Lectrodryer can help solve it. Write for Bulletin 216. Pittsburgh Lectrodryer Corporation. 325 32nd Street. Pittsburgh 30, Penna.

In England: Birlec, Limited, Tyburn Road, Erdington, Birmingham.
In Australia: Birlec, Limited, 51 Parramatta Road, Glebe, Sydney.

LECTRODRYERS DRY WITH ACTIVATED ALUMINAS

**LECTRODRYER**

REGISTERED TRADEMARK U. S. PAT. OFF.

# THESE ARE McKEE SERVICES

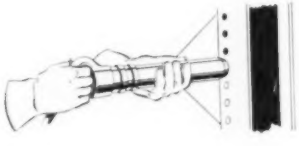
# TO THE PETROLEUM PROCESSING INDUSTRY

## Plant Design and Engineering

McKee designs complete refineries, individual units for all processes and auxiliary facilities including steam and power plants.

## Purchasing and Expediting

McKee buys all material and equipment, expedites procurement, makes necessary inspection and schedules arrival on the job at the proper time.



## Construction and Installation

McKee field crews execute all stages of plant construction and installation of equipment from preparation of the site to completion of the project ready for operation.

## McKee Experience

An inherent characteristic of all McKee services is *thoroughness*. This is a result of experience gained in repeatedly executing the multiplicity of details composing any large project. It is the factor that assures sound, practical design and engineering—prompt, economical procurement of materials and equipment—rapid, low-cost construction.

ARTHUR G. McKEE & COMPANY

DESIGN, ENGINEERING AND CONSTRUCTION FOR THE PETROLEUM REFINING AND IRON AND STEEL INDUSTRIES

ENGINEERS AND CONTRACTORS • ESTABLISHED 1905
2300 CHESTER AVENUE, CLEVELAND
30 Rockefeller Plaza, New York, N. Y.

**NATIONAL BANK OF TULSA**
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CHARLES A. STEELE
Attorney-at-Law

C. H. SWEET
Vice-President, National Bank of Tulsa

# STATEMENT OF CONDITION

*December 31, 1949*

## RESOURCES

| | | |
|---|---|---|
| Cash and Due from Banks | $71,537,461.33 | |
| U. S. Government Securities | 78,607,490.08 | |
| Other Bonds and Warrants | 4,659,684.99 | $154,804,636.40 |
| Loans and Discounts | | 36,700,434.26 |
| Overdrafts | | 284.92 |
| Income Receivable Accrued | | 430,994.34 |
| Prepaid Expenses | | 16,144.85 |
| Stock in Federal Reserve Bank | | 180,000.00 |
| Bank Premises | | 2,000,000.00 |
| Customers' Liability Under Acceptances | | 68,772.00 |
| TOTAL | | $194,201,266.77 |

## LIABILITIES

| | | |
|---|---|---|
| Deposits | | $182,404,039.47 |
| Acceptances Executed | | 68,772.00 |
| Income Collected, Not Earned | | 137,261.50 |
| Reserve for Taxes, Interest, Etc. | | 643,411.98 |
| Dividends Declared* | | 150,000.00 |
| Capital—Common | $3,000,000.00 | |
| Surplus | 3,000,000.00 | |
| Undivided Profits and Reserves | 4,797,781.82 | 10,797,781.82 |
| TOTAL | | $194,201,266.77 |

*Payable $75,000.00 January 13, 1950; $75,000.00 April 14, 1950

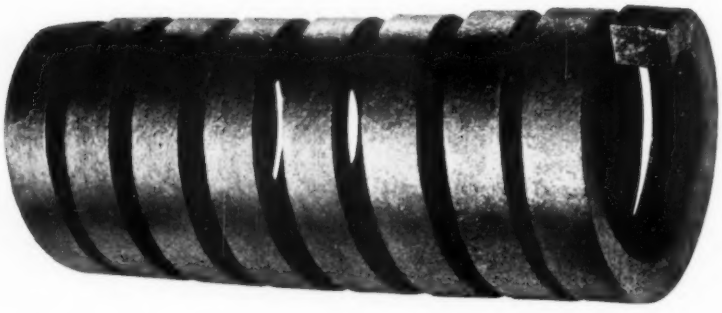
# NATIONAL BANK OF TULSA

*The Oil Bank of America*

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

# versi-pak®

## A NEW AND HIGHLY VERSATILE PLASTIC PACKING



**versi-pak** is the result of more than two years of testing and development. This new plastic packing can be used in an exceptionally large number of applications in oil field, pipe-line, and refinery service. It simplifies storage and inventory problems.

It is now being used successfully in reciprocating and centrifugal equipment and in hydraulic systems. Recommended for temperatures up to 350 F., pressures up to 600 p.s.i., against air, water, low-pressure steam, and a long list of chemicals. Available also in non-graphited form (R/M No. 1846) for use in food-handling equipment. For your free copy of the new **versi-pak** bulletin send the coupon below to the Packing Division, Manheim, Pa.

**RAYBESTOS-MANHATTAN, INC.**

**PACKING DIVISION, MANHEIM, PA.**

FACTORIES: Bridgeport, Conn.; Manheim, Pa.
No. Charleston, S.C.; Passaic, N.J.

RM

**Raybestos-Manhattan, Inc.**
**Packing Division, Manheim, Pa.**

Gentlemen: ☐ Please send me a free copy of the **versi-pak** bulletin.

Name _____

Position _____

Company _____

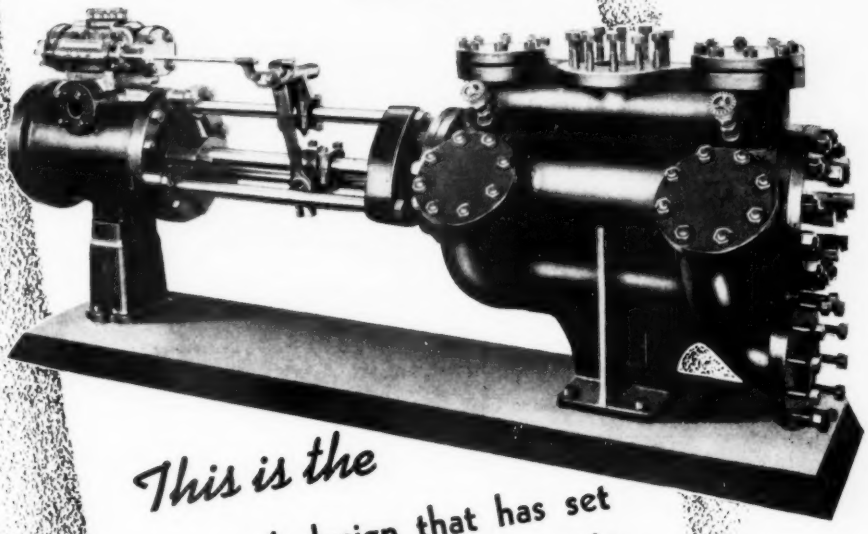
Address _____

City _____ Zone _____ State _____

RAYBESTOS-MANHATTAN, INC., Manufacturers of Packings • Asbestos Textiles Mechanical Rubber Products • Abrasive and Diamond Wheels • Rubber Covered Equipment Brake Linings • Brake Blocks • Clutch Facings Fan Belts • Radiator Hose • Powdered Metal Products • Bowling Balls

# TRANSIT ACE

*for* HIGHLY VOLATILE *Liquids*



*This is the*

Patented design that has set a new standard of efficiency in the handling of propane, butane, butadiene, casinghead gasoline and other highly volatile liquids.

TRANSIT PUMPS

**NATIONAL TRANSIT PUMP AND MACHINE CO.**

Home Office and Works, OIL CITY, PENNA. Mid-Continent Warehouse, 318 East Archer Street, TULSA, OKLA.

NEW YORK · PHILADELPHIA · CHICAGO · CLEVELAND · PITTSBURGH · LOS ANGELES · HOUSTON · TULSA

Allied Supply Company, 2068 East 37th Street, Los Angeles, California

The Lang Company, 267 West First South St., Salt Lake City, Utah

Eugene V. Winter Co., 15 Drumm Street, San Francisco, California

Standard Supply and Hardware Company, 822-838 Tchoupitoulas St., New Orleans, Louisiana

Reeves & Skinner Machinery Co., 2211 Olive Street, St. Louis, Missouri

# "Job-Rated"... yet priced with the lowest

## ...and look what you get for what you pay...

**1. "PILOT-HOUSE" CABS:**

Rear quarter windows and the big 890 sq. in. windshield give safe all-'round vision. Vent wings . . . plus the deep-cushioned comfort of 57¼-inch Air-O-Ride adjustable seats.

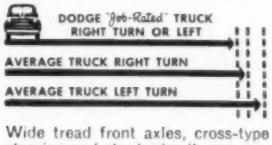
**2. AN ECONOMICAL TRUCK ENGINE:**

An engine designed and "Job-Rated" to develop power for 1½-ton truck loads . . . NOT the same engine used in lighter trucks. A Dodge truck engine is "Job-Rated."

**3. NEW SYNCHRO-SHIFT TRANSMISSIONS:**

New Dodge "H" models (1½-ton) are equipped with "Job-Rated" 4-speed silent helical gear transmissions. New 5-speed Synchro-shift transmissions available.

**4. SHORT TURNING DIAMETERS:**




Wide tread front axles, cross-type steering and short wheelbases provide shorter turning diameters for easy handling and parking.

**5. BIGGER LOAD SPACE:**

Dodge trucks, engineered for balanced weight distribution, provide for maximum body length in relation to wheelbase. For example: 152" wheelbase model is "Job-Rated" for 10-foot to 13-foot bodies.

**PLUS**

**many more quality features that you'll want in your next new truck!**

The truck illustrated . . . a Model "H" 1½-ton . . . fits its job. It's "*Job-Rated.*"

It has "*Job-Rated*" power . . . a "*Job-Rated*" frame, transmission, clutch, axle, springs, brakes and tires.

The cost of operating this truck will be low. Upkeep cost will be low. This truck will last longer.

Does such a truck cost more? Emphatically "NO." Dodge "*Job-Rated*" trucks, ½-ton to 4-ton, are priced with the lowest in each weight class.

Ask your Dodge dealer to recommend the right "*Job-Rated*" truck for *your* job.

★ ★ ★

Dodge Model H-152 (illustrated) is one of 92 "*Job-Rated*" 1½-ton basic chassis models, ranging from 7,000 to 16,250 lbs. G.V.W. Seven wheelbases, conventional and C.O.E. Single-speed or two-speed axles.

For low-cost transportation... switch to

**DODGE "Job-Rated" TRUCKS**

More than 350 different G.V.W. chassis models—½-ton to 4-ton

# NEW and *exclusive* HI-LO *Limitorque* 2 Speed *Automatic* Valve Operator

## . . . prevents "*Surge*" or "*Hammer*" during closure of Valves, by *automatically controlling speed* of Valve Operator

Another *first* with "Phillie Gear" . . . Another *exclusive* feature available for use with the internationally known *LimiTorque* Automatic Valve Operator . . .

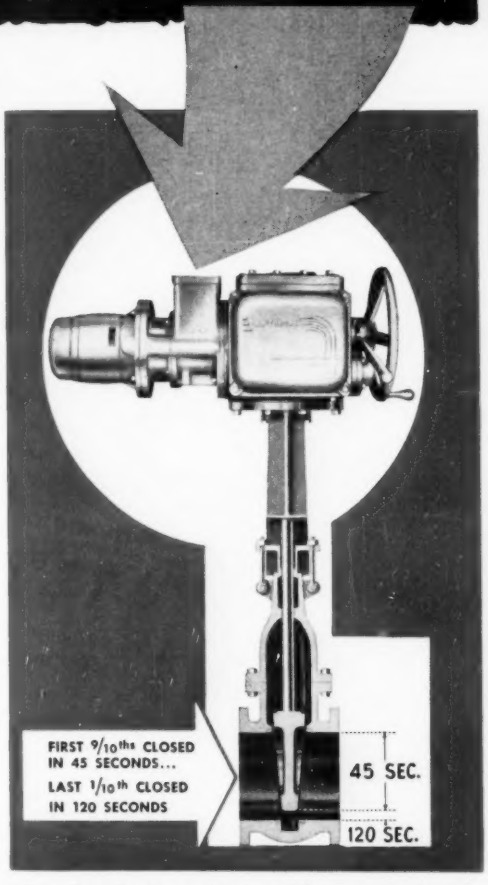
**AN ALMOST "MAGIC" DEVICE THAT *PREVENTS*:**

- Damage to pipeline valves and station pumps
- Breaks in pipeline caused by "surge"
- Damage to expensive equipment
- Injuries to personnel

**A DEVICE THAT *ELIMINATES*:**

- Line "surge" or "hammer" during valve closure
- Need for elaborate pressure-relief and storage facilities
- Necessity of by-pass valves because of greatly increased torque during initial valve opening
- Elements of human error, to a great extent, in pipeline operation

The Hi-Lo 2 speed device is *new—different—exclusive*, and when combined with *LimiTorque*, gives *simple, positive, automatic* and *safe* "Remote Control" of Valves.




Above illustration shows gate valve with first nine-tenths of travel closed in 45 seconds, and last one-tenth of travel to close in 120 seconds. However, change from high to low speed can be made at any pre-determined point of gate travel.

Be convinced; write for more complete details.

# Philadelphia Gear Works, INC.

**ERIE AVE. AND G ST., PHILADELPHIA 34, PA.**

NEW YORK • PITTSBURGH • CHICAGO • HOUSTON

IN CANADA: WILLIAM AND J. G. GREEY LIMITED, TORONTO

*Industrial Gears and Speed Reducers*
*LimiTorque Valve Controls*

# You ordered this finer Gauge!

You asked for pressure gauges that would stay accurate under the unequalled punishment of oil country service.

Our answer was the Marsh Mastergauge series—gauges with the rugged bourdon tube and the heavy-duty precision movement built to withstand the extremes of pressure, temperature, pulsation, vibration.

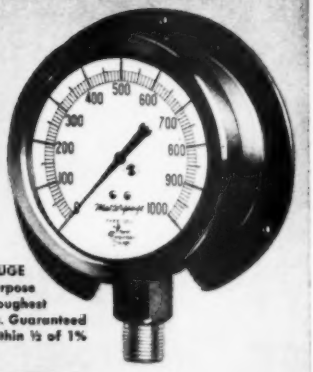
Today thousands of Marsh Gauges throughout the oil industry prove that we found the *right* answer. You ordered this finer gauge. It is ready for you at your local supply store.

**MARSH INSTRUMENT CO.**
Sales affiliate of Jas. P. Marsh Corporation
**Dept. L, Skokie, Ill.**




This Oil Industry Bulletin is yours for the asking

The Marsh branch plant at Houston offers shipment from stock and facilities for repairing all makes of gauges.

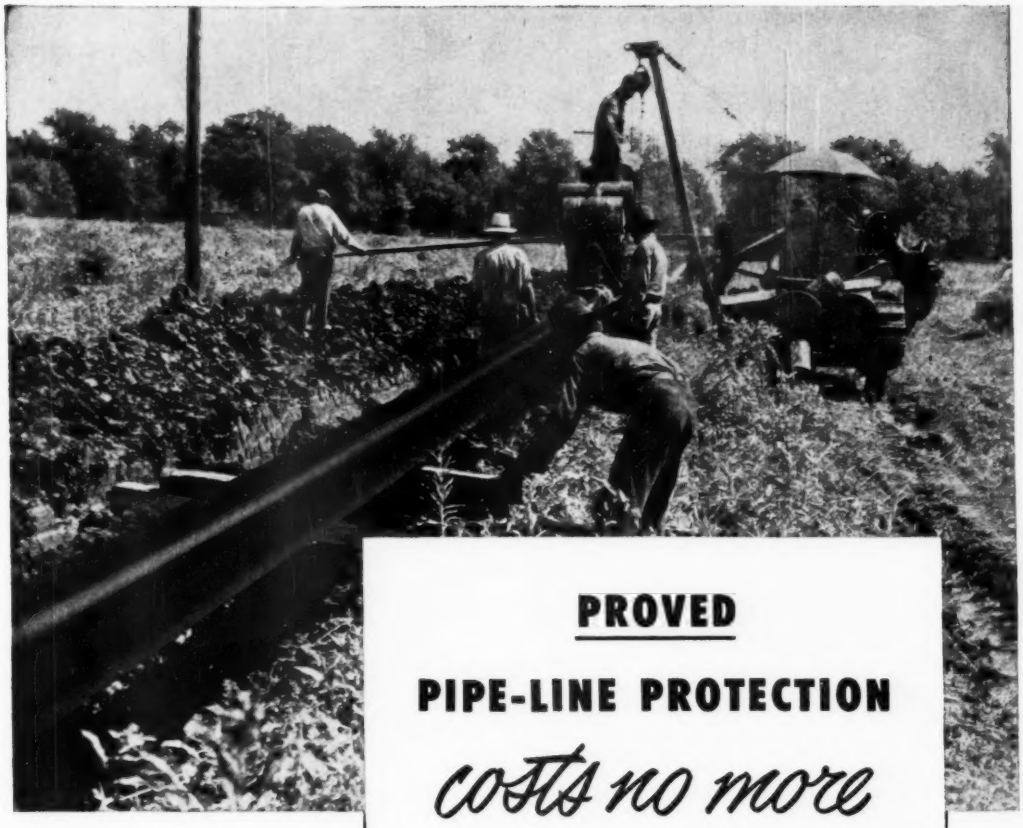


**MASTERGAUGE**—the all-purpose gauge for toughest applications. Guaranteed accurate within ½ of 1% of reading.

**CHRISTMAS TREE GAUGE**—a gauge that incorporates ruggedness and accuracy beyond all others.

**OIL COUNTRY BOILER GAUGE**

**MARSH** STOCKED by Your Local Supply Store **GAUGES**



# PROVED

# PIPE-LINE PROTECTION

## *costs no more*

WHY gamble with *unproved* methods of pipe-line protection when Koppers Bitumastic® Enamels offer you the longest-lived corrosion prevention you can obtain.

The base of Koppers Bitumastic Enamels is highly-refined coal-tar pitch, a substance that has demonstrated its resistance to water and chemical action for more than 100 years. Special processing by Koppers adds to this coal-tar pitch base the characteristics of plasticity, widened temperature susceptibility ranges and increased resistance to soil distortion.

Since the first Koppers Bitumastic Enamels for pipe lines were introduced more than 35 years ago, Koppers has set the pace in new developments in pipe-line protection. Records of 30 and more years of service are evidence that Koppers Bitumastic Enamels are the best protection you can buy. And the cost is exceptionally low.

Koppers sales engineers will give you complete details and estimates on this permanent pipe-line protection. Contact your Koppers representative today.

KOPPERS **BITUMASTIC** ENAMELS
REG. U.S. PAT. OFF.

**KOPPERS COMPANY, INC., Tar Products Division, Dept. 105T, Pittsburgh 19, Pa.**

# THREE 3 NEW MID-CONTINENT STORES

Your beacon of superior oil field service—the famous "oil spouting" derrick—now marks new Mid-Continent supply stores serving the industry at Plainville, Kansas, and at Snyder and Abilene, Texas. These modern, well-stocked stores are part of our expanding network of strategically located service points designed to meet the needs of the oil industry "round the clock." Make Mid-Continent your supply headquarters! You will find our merchandise competitive . . . our service the best!

**DIVISION AND DISTRICT OFFICES**

HOUSTON, TEXAS
MIDLAND, TEXAS
NEW YORK CITY, N. Y.
SHREVEPORT, LA.
TULSA, OKLAHOMA
CASPER, WYOMING
DALLAS, TEXAS
KERMIT, TEXAS
LOS ANGELES, CALIF.
NATCHEZ, MISS.
NEW ORLEANS, LA.
ODESSA, TEXAS
OKLAHOMA CITY, OKLA.
SAN ANTONIO, TEXAS
WICHITA, KANSAS
WICHITA FALLS, TEXAS

## MID-CONTINENT Supply Company

*General Offices Mid-Continent Bldg.* **FORT WORTH, TEXAS**

**FIELD STORES**

ABILENE, TEXAS
BROOKHAVEN, MISS.
BOWIE, TEXAS
DUNCAN, OKLA.
EDMOND, OKLA.
EUNICE, NEW MEX.
FALFURRIAS, TEXAS
FULLERTON, TEXAS
GAINESVILLE, TEXAS
GREAT BEND, KANSAS
HOBBS, NEW MEXICO
HOUMA, LA.
HOUSTON, TEXAS
KERMIT, TEXAS
KILGORE, TEXAS
LAKE CHARLES, LA.
LAUREL, MISS.
MAGNOLIA, ARK.
NATCHEZ, MISS.
NEW IBERIA, LA.
ODESSA, TEXAS
OKLAHOMA CITY, OKLA.
PAULS VALLEY, OKLA.
PLAINVILLE, KANSAS
RANGELY, COLO.
REFUGIO, TEXAS
SHREVEPORT, LA.
SNYDER, TEXAS
SUNDOWN, TEXAS
WICHITA FALLS, TEXAS
WICHITA, KANSAS

**THE WORLD'S LARGEST INDEPENDENT OIL WELL SUPPLY COMPANY**

# ONE is always Outstanding...

**Rose Bowl football produced its first champion when Michigan and Stanford met in 1902. The second game was played in 1916 between Washington State and Brown University. Since then it has highlighted Pasadena's Tournament of Roses on New Year's Day continuously except for the unusual change of location to Durham, N. C., in 1942.**

Teamwork is the key to a winning combination in producing touchdowns or industrial products. Jones sucker rods are a product of such teamwork at its highest level. The combined experience and skill of engineers in the field and specialists in the plant is pooled to produce sucker rods that assure satisfactory service under any pumping condition for which they are specified. The fund of knowledge built up by this teamwork for over 50 years is reflected in the quality of Jones products, its field engineering service and an ability to supply helpful assistance in attaining efficient and economical pumping.

Factual detailed catalogs are available to help you buy better sucker rods for the money you spend.

THE S. M. JONES COMPANY
*(Subsidiary of Buffalo Bolt Company)*
**General Office and Factory: TOLEDO, OHIO**
*Sales Office:* Kennedy Building, Tulsa, Okla.
*Export Sales Office:* Buffalo International Corp. 50 Church Street, N. Y. C.

***The Best by Any Test!***

# THE CITY NATIONAL BANK

## OF HOUSTON

**Condensed Statement of Condition As of the Close of Business December 31, 1949**

### RESOURCES

| | | |
|---|---|---|
| Cash and Due from Banks | $65,690,298.04 | |
| U. S. Government Bonds | 60,042,957.22 | |
| Municipal Obligations and Other Investments | 3,525,712.53 | |
| Federal Reserve Bank Stock | 300,000.00 | $129,558,967.79 |
| Loans and Discounts | 47,199,141.77 | |
| Commodity Loans Secured by Warehouse Receipts | 2,955,617.20 | 50,154,758.97 |
| Bank Premises | 4,000,000.00 | |
| Furniture and Fixtures | 1.00 | 4,000,001.00 |
| Interest on Securities and Other Income Earned—Not Collected | | 259,731.14 |
| Customers' Liability on Letters of Credit | | 3,440,971.76 |
| TOTAL RESOURCES | | $187,414,430.66 |

### LIABILITIES

| | | |
|---|---|---|
| Common Stock | $5,000,000.00 | |
| Surplus | 5,000,000.00 | |
| Undivided Profits | 1,670,684.80 | |
| TOTAL CAPITAL ACCOUNT | | $ 11,670,684.80 |
| Reserve Accounts | | 561,853.75 |
| Liability on Letters of Credit | | 3,440,971.66 |
| DEPOSITS: | | |
| Individual | $127,751,622.91 | |
| Banks | 42,834,223.87 | |
| Government | 1,155,073.57 | |
| Total Deposits | | 171,740,920.35 |
| TOTAL LIABILITIES | | $187,414,430.66 |

## CAPITAL & SURPLUS $10,000,000.00

### OFFICERS

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Executive Vice President
J. A. ELKINS, JR.
First Vice President
JOHN M. GRIFFITH
Vice President
H. L. SADLER
Vice President
GUY H. HEATH
Vice President
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Vice President
GEORGE L. NYE
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WADE COOPER
Vice President
W. J. KEITT
Vice President
W. C. MENASCO
Vice President and Cashier
DAVID MAHOOD
Vice President
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Vice President
FRED P. HAMILL
Vice President and Trust Officer
DAVID T. HEDGES
Vice President
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Assistant Vice President
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Assistant Cashier
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LEONARD McGOWAN
Assistant Cashier
JACK PATTERSON
Assistant Cashier
LEON BONDURANT
Assistant Cashier
W. GREER HUBBARD
Assistant Cashier
J. W. JOHANSON
Assistant Cashier

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W. S. ELKINS
A. P. GEORGE
W. J. GOLDSTON
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J. CLAUDE HAYNES
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C. E. NAYLOR
J. A. PLATT
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E. R. TURNER
WHARTON WEEMS

**MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION**

# THE MOST ACCESSIBLE PUMP EVER BUILT!

# WHELAND
## Duplex Slush Pump
HP-8000

7" x 12"

*Sectional view showing construction of THE BIGGEST LITTLE PUMP ON THE MARKET!*

**THE BIGGEST LITTLE PUMP ON THE MARKET NOW HAS**

- **NEW SPIRAL GEARS**
  TAKES LESS POWER, IS SMOOTH, FREE FROM VIBRATION
- **STEEL FLUID END**
  GREATER STRENGTH WITH LESS WEIGHT. CAN BE FIELD WELDED.

Already one of the most popular pumps ever built, the Wheland HP-8000 takes another step far ahead! It still has every one of the tried and true features that made it world-famous for performance and dependability. It is just as accessible, still has that outstanding lubrication system and those trouble-free bearings. It still has that exclusive Wheland tie rod construction that gives rugged strength in minimum weight. Now it is easier to run, is free from vibration and runs like a whisper . . . the steel fluid end has greater strength with less weight and can be field welded. Since so many users like the alloy iron fluid ends so well, we will continue to make them, too. Whether you prefer the alloy iron or the steel fluid end, the Wheland HP-8000 will continue to enhance its reputation as the BIGGEST little pump on the market. *Write Dept. 0-6 for mechanical details.*

**DOMESTIC DISTRIBUTORS**
Jones & Laughlin Supply Co.
Tulsa, Oklahoma
Stores and Offices in all Principal Oil Fields and Centers

# WHELAND
THE WHELAND COMPANY, CHATTANOOGA, TENN., U. S. A.
*ROTARY DRILLING MACHINERY*

**EXPORT DISTRIBUTORS**
Lucey Export Corporation
233 Broadway,
New York 7, N. Y.
Broad Street House
London E.C. 2, England

*DRAW WORKS • SLUSH PUMPS • ROTARIES • SWIVELS • CROWN BLOCKS • TRAVELING BLOCKS*

# 13 is your lucky number

ONLY WHEN YOU PROTECT YOUR ENGINE WITH

# WINSLOW FILTERS

**1 REMOVE ACIDS** by special neutralizing agents.

**2 STOP MOISTURE** at water-repellent surface, absorb residue in element fibers.

**3 TRIPLE SAFETY** Patented rupture-proof double covering; element materials harmless to engine; additives unchanged in compounded oils.

**4 TRAP ABRASIVES** such as gritty carbon, dust, or metal particles.

**5 TOP EFFICIENCY** Channels narrow toward center, stop larger particles first, smaller ones later, hold them *all*.

**6 FREE FLOW** Entire outside surface filters oil; spring coil core maintains free flow.

**7 LONGER LIFE** Element fibers absorb impurities, straighten out, keep channels open for longer use.

**8 ELEMENTS HOLD DIRT** twice, triple, quadruple their original weight.

**9 RIGHT SIZE** Winslow Filters for all sizes of engines.

**10 FULL-FLOW** Filters *all* the oil oftener, cleaner.

**11 ELEMENTS FOR ALL** standard makes of filters.

**12 ENGINEERING SERVICE** to meet special filtration problems.

**13 DISTRIBUTORS AND DEALERS** throughout the United States, Canada, in foreign nations, offer convenient service.

*DETAILS? Gladly. Just write to:*

WINSLOW FILTERS

Winslow Engineering Company

4069 Hollis Street • Oakland 8, California

## THE BEST FEATURES OF GATE, PLUG, AND GLOBE VALVES COMBINED WITH EXCLUSIVE CAMERON INNOVATIONS

### *NON-LUBRICATED*

No grease of any kind required to effect a seal; also reduces chance for human error and eliminates lubrication maintenance cost.

### *PRESSURE SEALING*

When plug is seated, line pressure automatically forces seat into tighter engagement with plug.

### *UNIQUE LIFT-PLUG ACTUATOR*

A novel mechanical design which lifts, turns and reseats plug in continuous turn of a lever.

### *RENEWABLE SEAT AND PLUG*

Easily replaced when damaged; permits any desired trim.

### *FIELD REPAIR*

Can be completely overhauled without removal from line; no special tools or skill required.

### *EASY OPERATION*

Requires less operating effort than other valve designs.

### *FORGED STEEL*

All parts, including body, are press or drop forged from specification materials.

# THE NEW Cameron NON-LUBRICATED LIFT-PLUG VALVE

The Cameron Non-Lubricated Type "LP" (Lift-Plug) Valve presents a revolutionary approach to the problem of quality valve design.

Outstanding among the many mechanical improvements incorporated in this new valve is the fact that it does not require lubricant to effect a shut-off, whereas lubrication is essential to the operation of the usual plug valve and is generally incorporated as an improvement in gate valve design. The seat in the Cameron "LP" Valve is a separate member, a portion of its exterior surface being exposed to pressure, thus permitting a pressure sealing action against the plug. This feature eliminates many of the difficulties experienced with conventional designs where distortion of the body due to pressure, temperature, or line strains ordinarily causes imperfect sealing and makes lubrication a necessity. The unique lift-plug mechanism incorporated in the valve not only acts to eliminate the need for lubrication but makes possible an extraordinary ease of operation, since operating effort goes first into lifting the plug straight off the seat, then into turning it while free from contact with the seat, and, finally, reseating with rotation.

A descriptive bulletin will gladly be sent to interested operators upon request.

Cameron

**IRON WORKS, INC.**

**P. O. BOX 1212 HOUSTON, TEXAS**

***Export: 74 Trinity Place, New York, N. Y.***

# Producers
# Refiners
# Marketers

## of petroleum products

**Be sure with Pure**

# THE PURE OIL COMPANY

Marketing Offices in Principal Cities of the Eastern, Central and Southern States

General Offices, Chicago, Illinois

**Kellogg has engineered Atmospheric Distillation units for more than 35 different oil companies including:**

Anglo-Iranian Oil, Ltd.
Argentine Government Oil Fields
Atlantic Refining Co.
The British American Oil Co. Ltd.
Cie. Francaise de Raffinage
Cities Service Refining Corporation
Consolidated Refineries, Ltd.
Continental Oil Co.
Esso Standard Oil Co.
Imperial Oil Limited
Magnolia Petroleum Co.
National Petroleum Council of Brazil
Pan American Refining Corporation
Societe Generale des Huiles de Petrole
Societe Industrielle Belge des Petroles
Socony-Vacuum Oil Co.
Standard Oil Company (Indiana)
The Standard Oil Company (Ohio)
Standard Oil Co. of California
The Texas Company
Union Oil Company of California

***One million barrels of crude pass through Kellogg-built distillation units every 24 hours . . .***

# ...Yes! Now more than 1,000,000 barrels of crude are processed each day in Kellogg distillation units... with additional capacity underway on three different continents!

KELLOGG built its first atmospheric distillation unit more than a quarter century ago — when many of the primary distillation facilities of other types were already in existence. Yet since that date Kellogg units have been installed on five continents in more than fifty different locations.

The applications have ranged from virtual skimming in Palestine where more than half of the crude was returned to ground reservoirs to the accurate fractionation of Pennsylvania crude.

They've been designed as independent units and in combination with decarbonizing, coking, cracking, vacuum distillation, visbreaking and reforming. Individual capacities have ranged from 1,000 to over 40,000 BPD.

In a phase of oil processing such as this, where building contracts are customarily open to practically any bidder, there must be definite reasons for *the record concentration in one company's hands* of contracts for more than a million barrels of capacity.

Kellogg invites refiners, who are modernizing old facilities or increasing crude capacity, to examine with its engineers the reasons for this preference.

## FURNACE DESIGN AND TOWER "FLUIDYNAMICS" DETERMINE EFFICIENCY

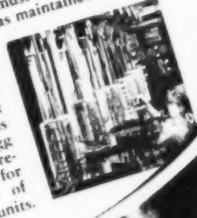
Atmospheric Distillation is in essence a simple process — comprising only two unit operations — yet there are many pitfalls that can markedly affect stream efficiency. One would think that, with a process more than twenty-five years old, all important factors would have been discovered and formulated. But such is not the case with either furnaces or bubble towers. There is still much to be learned and new data are being obtained every day. That is why, over this entire period, Kellogg has never ceased to gather and evaluate operating data from all over the world, and has carried on continual research on both items of equipment.

Along these lines, the Lucite bubble tower (shown here) continues to operate in the Kellogg Engineering Laboratories, permitting engineers to carry on investigation of the problems of "Fluidynamics" — cap spacing, types of trays, dumping, entrainment and a host of other details.

## IT TAKES ALL SEVEN TO PRODUCE GREATER EARNING POWER...

### 1 THE DEVELOPMENT "TOOLS"

both equipment and people — to improve processing and equipment ideas. Most refiners know of Kellogg's extensive pilot plant and chemical laboratories — know the professional reputations of the men who guide their activities. But processes are only as good as the equipment within which they must operate. That is why, over the years, Kellogg has maintained an extensive Metallurgical Research and Development operation. Materials, fabrication methods and new types of equipment are its permanent projects. The contributions of this group to the Kellogg organization have been responsible in a major way for the superior efficiency of Kellogg refinery units.



### 2 PROCESS ENGINEERING

by three distinct groups of specialists — *sequence* engineers, *unit* engineers and *development* engineers — supported by an extensive reservoir of exclusive data.

### 3 SPECIALISTS IN EVERY PHASE

of design engineering due to the completeness of Kellogg's engineering staff.

### 4 SPECIALIZED BUYERS

backed by the cumulative buying power of the largest company in the business.

### 5 COMPLETE FABRICATING FACILITIES

to make schedule deadlines and to develop workable "firsts" in refinery equipment.

### 6 CONSTRUCTION KNOW-HOW

acquired in completing hundreds of major jobs, plus an ample supply of the proper tools, and the constant development of new money-and-time-saving methods on the construction lot.

### 7 PRACTICAL OPERATING COUNSEL

on all design and construction, achieved through practical operating men working as an integral part of the company.

## ...AND ONLY KELLOGG HAS ALL SEVEN!

The M. W. Kellogg Company, (a subsidiary of Pullman, Inc.), New York, Jersey City, Los Angeles, Tulsa, Houston, Toronto, London, Paris

THE price paid for Attapulgus and Porocel adsorbents is around *one cent* per pound—a fact which, we will agree, makes pretty dull reading. But for refiners using our materials, this modest investment pyramids to phenomenal returns. To be specific, each pound properly applied to petroleum stocks increases their value by at least *one dollar*—a return of 100 to 1.

Some four billion pounds of fullers earth and bauxite have been shipped to refineries by Attapulgus and Porocel—a noteworthy record of service to the industry. But what is even *more* noteworthy is the fact these materials have put four billion dollars into refinery purses—a point which makes *good* reading.

That's the record to date. It was accomplished by adsorbent-treating a wide variety of hydrocarbons to effect reduction or removal of colors, odors, tastes, moisture, sulfur, acids, fluorides and unsaturates, and for catalytic purposes. It's a record for *you* to tie to when considering plans to improve quality, expand output, or both.

Consult with us freely. Our broad knowledge of the behavior of our products under many sets of conditions should go far in helping *you* get 100 for 1.

**ATTAPULGUS CLAY COMPANY** *Fullers Earth* · **POROCEL CORPORATION** *Activated Bauxites*

Dept. V, 210 West Washington Square, Philadelphia 5, Pa.

# MAXIMUM SEPARATION WITH MALONEY-CRAWFORD EQUIPMENT

## SERVICE BY MALONEY-CRAWFORD FIELD STAFF

All the forces of nature — gravity, centrifugal force, gas expansion, reduction of velocity, surface contact, and high velocity, are used to get maximum separation of oil mists from moving gas streams in Maloney-Crawford horizontal type separators. And with more furnace area resulting in a lower heat transfer per square foot in Maloney-Crawford indirect heaters, a stage separation hook-up, using both M-C separators and heater, as shown above, gives the greatest possible efficiency.

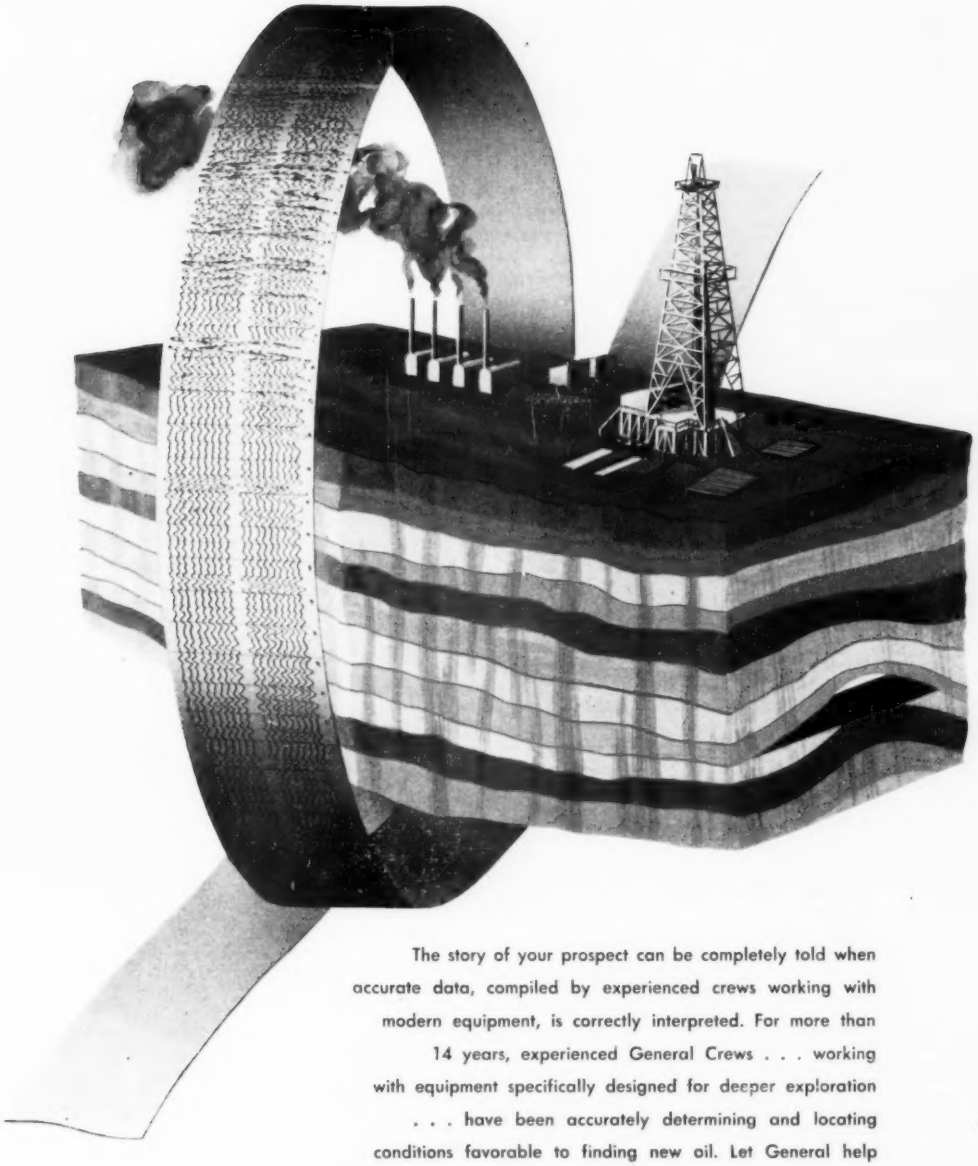
STOCKS AND SERVICE AT THESE OIL CENTERS

Artesia, N. Mex.; Calgary, Canada; Corpus Christi, Tex.; Casper, Wyo.; Dallas, Tex.; Edmonton Canada; Fort Worth, Tex.; Houston, Tex.; Lafayette, La.; Lloydminster, Canada; Newcastle, Wyo.; New Orleans, La.; Odessa, Tex.; Oklahoma City, Okla.; Pampa, Tex.; Redwater, Canada; San Angelo, Tex.; Tulsa, Okla.; Wichita Falls, Tex.

# MALONEY CRAWFORD

MALONEY-CRAWFORD TANK & MFG. CO.

**FACTORY AND GENERAL OFFICE:** 38 NORTH PEORIA — BOX 659 — TULSA, OKLAHOMA
**EXPORT REPRESENTATIVE:** Baird Lines, 420 Lexington Avenue, New York, N. Y.
**CANADIAN REPRESENTATIVE:** Maloney-Crawford of Canada, Ltd., Edmonton, Canada
**ROCKY MOUNTAIN REPRESENTATIVE:** W. H. Connor, Inc., Casper, Wyo.
**TEXAS PANHANDLE REPRESENTATIVE:** Atlas Tank Company, Pampa, Texas



The story of your prospect can be completely told when accurate data, compiled by experienced crews working with modern equipment, is correctly interpreted. For more than 14 years, experienced General Crews . . . working with equipment specifically designed for deeper exploration . . . have been accurately determining and locating conditions favorable to finding new oil. Let General help you explore new areas and deeper horizons for tomorrow's oil reserves.

General

GEOPHYSICAL COMPANY

HOUSTON

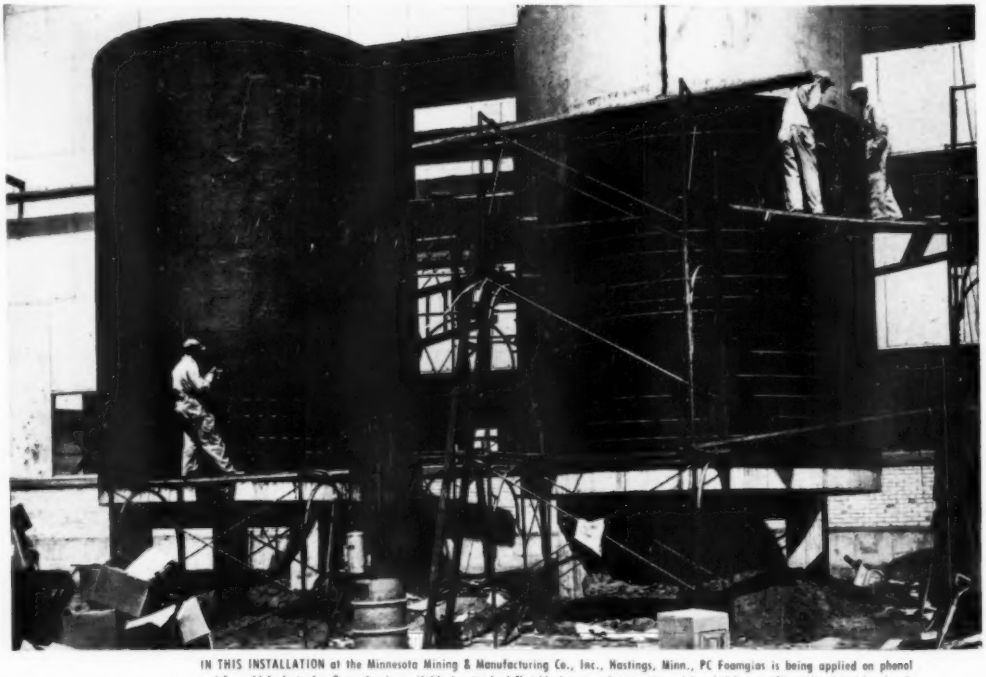
# WHY PC FOAMGLAS is the ideal insulation

INDUSTRIAL plants throughout the country have come to rely on PC Foamglas to solve their most pressing insulating problems. They have found the unique properties of Foamglas make it the ideal insulating material for outdoor and indoor tanks, towers, retorts and other large vessels—for hot and cold piping, heat exchangers, evaporators and other processing equipment. Foamglas has especially proved itself in meeting the rigid requirements of the oil and gas, and chemical industries.

## WHAT IS FOAMGLAS?

Foamglas is the only material of its kind, different from wools, boards and batts, the various fibrous and granular insulating materials with which you are already familiar. It contains no organic matter.

To make Foamglas, a very special kind of glass is subjected to a controlled heating process which produces strong, rigid blocks, composed of millions of tiny closed glass bubbles, full of still air. Because it is made of glass and because of its cellular structure, Foamglas is an exceptionally effective insulating material.

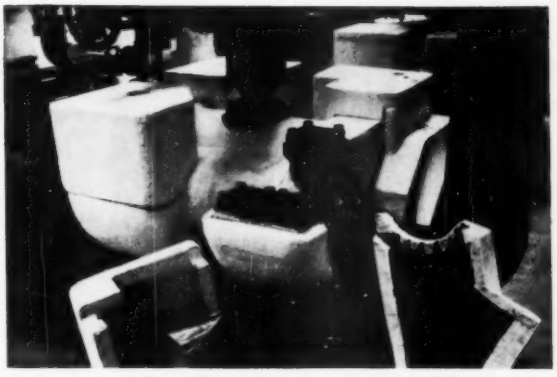


IN THIS INSTALLATION at the Minnesota Mining & Manufacturing Co., Inc., Hastings, Minn., PC Foamglas is being applied on phenol and formaldehyde tanks. Foamglas is available in standard flat blocks, curved segments and beveled lags to fit equipment sides, heads and domes, and in preformed sections for standard pipe sizes and fittings.

PITTSBURGH PC CORNING

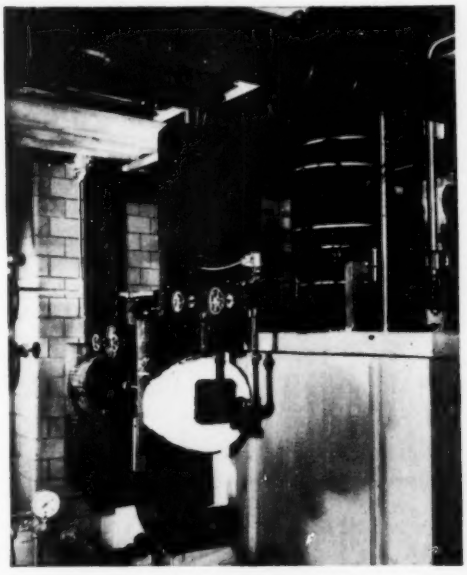
FOAMGLAS INSULATION

# for industrial applications



◀ HERE, FITTING COVERS of PC Foamglas Insulation have been fabricated in the field from standard blocks. The sections, covered with Marino paper, are interlocking, can be removed easily from the reciprocating pump when desired. Photo courtesy of Socony-Vacuum Oil Co., Inc.

▼ IN THE NEW antibiotic building of Parke, Davis & Company, Detroit, Michigan, PC Foamglas Pipe and Fitting Insulation has been used on the pipe lines. A finish will be applied over the insulation and painted to match the interior color scheme.



## LIGHT — STRONG — WORKABLE

PC Foamglas is lightweight, easy to handle. Durable and strong, it requires no expensive vapor and weather protection. Foamglas can readily be cut with a knife in straight lines or odd shapes. And because it's friable, when subjected to point loading, it yields to such surface irregularities as rivet heads and welds. Thus it can be pressed close to the area to be insulated without breaking or cracking: it can be shaped to curved surfaces of all radii.

## MOISTUREPROOF — ACIDPROOF — FIREPROOF

Its continuous cellular structure does not permit moisture or vapor to penetrate or pass through Foamglas. It withstands high humidity, minimizes condensation. And, since Foamglas is a true glass, it is acidproof and fireproof. The latter characteristic is especially valuable where Foamglas is used as insulation with materials which are not fire-resistant.

## FIRST COST IS LAST COST

You need fear no costly repairs, maintenance or replacements when you insulate with PC Foamglas. Being glass, it is impervious to many elements that cause other materials to lose insulating efficiency. In fact, when installed according to our specifications and recommendations, PC Foamglas retains its original insulating efficiency *permanently*.

Its ability to retard heat travel, to reduce condensation, to withstand humidity, makes Foamglas an exceptionally *effective* insulation. Freedom from repairs, maintenance and replacement makes PC Foamglas an exceptionally *economical* insulating material.

## GET COMPLETE INFORMATION

Send for a sample of Foamglas. Test its light weight. Step on it. Cut it. Send the convenient coupon for our detailed, authoritative free booklet. Consult our insulating specialists regarding your insulating problems.

Pittsburgh Corning Corporation
Dept. S-10, 307 Fourth Avenue
Pittsburgh 22, Pa.

Please send me without obligation, a sample of PC Foamglas and your FREE booklet on the use of this *permanent* insulating material on industrial equipment.

Name_____

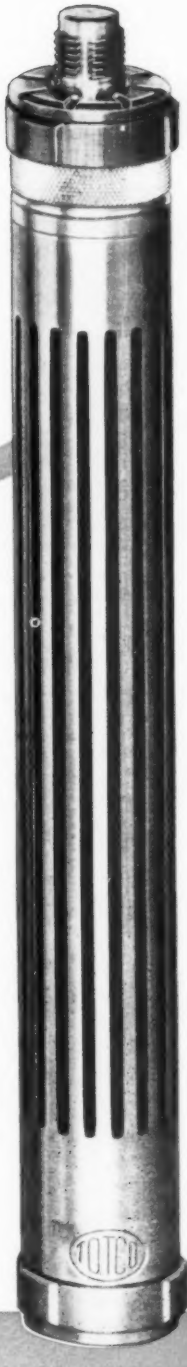
Address_____

City_____ State_____

*When you insulate with Foamglas...you insulate for good!*

# The *little instrument* that pays *big dividends* in fast, efficient, money-saving

# CONTROLLED VERTICAL DRILLING



Throughout the United States, and in every oil-producing country of the world, the combination of Totco Recorders and controlled vertical drilling methods saves the oil industry many millions of dollars each year through avoiding crooked holes. Although a Totco is one of the smallest items of equipment at a drilling job — and its cost is negligible in the overall cost of any well . . . this little instrument supplies the accurate information that enables the driller to *control* the bit and keep it on a vertical course. Yes,

TOTCO RECORDERS

pay big day-by-day dividends in fast, efficient, money-saving Controlled Vertical Drilling of wells to any depth, in any formations, everywhere.

Ask the operators who use Totco Recorders in thousands of wells each year, or send for complete information.

*Totco Equipment is leased or rented in the U.S.A.; sold for export only.*

TOTCO

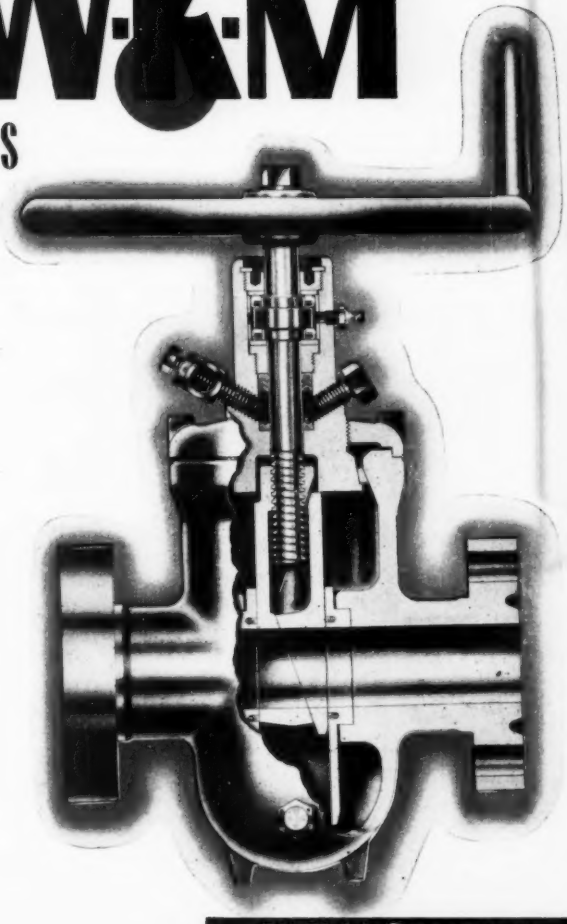
**TECHNICAL OIL TOOL CORP., LTD.**
**1057 N. LA BREA AVE., LOS ANGELES 38, CALIF.**

**Exclusive Distributors: California — REPUBLIC SUPPLY COMPANY OF CALIFORNIA • Domestic (Outside California — CONTINENTAL SUPPLY COMPANY • Canada — OIL WELL SUPPLY COMPANY • Export (Except Canada) — LUCEY EXPORT CORP., New York**

# WHY BUY W-K-M

## HERE ARE 9 GOOD REASONS FOR W-K-M GATE VALVE

## Superiority



**W-K-M high pressure Gate Valves for flow lines and Christmas Trees have earned their place as the most dependable . . . and the most popular . . . valves in oilfields throughout the world. That's why hundreds of operators have standardized on W-K-M Valves.**

1. **Through-conduit opening . . . no turbulence . . . no restriction of flow.**
2. **Parallel expanding gates . . . seal directly across both seats with no distortion whatever . . . positive shut-off on both sides.**
3. **Lubricant contained in entire body . . . no special lubricant required . . . seal does not depend on lubricant.**
4. **Oversize bronze renewable seats.**
5. **Combination wipe and seal rings keep the gate clean . . . pressure out . . . grease in.**
6. **Double roller thrust bearings on stem for ease of operation.**
7. **Combination plastic-chevron packing . . . uses no gland or gland follower.**
8. **Pressure seal bonnet . . . no flanges, no studs and nuts.**
9. **Every W-K-M Valve is backed by a sales and service organization covering the world.**

**W-K-M Company**

OIL FIELD, PIPE LINE & INDUSTRIAL EQUIPMENT

HOUSTON, TEXAS, U. S. A.
LOS ANGELES

Cable Address: "WILKOMAC"
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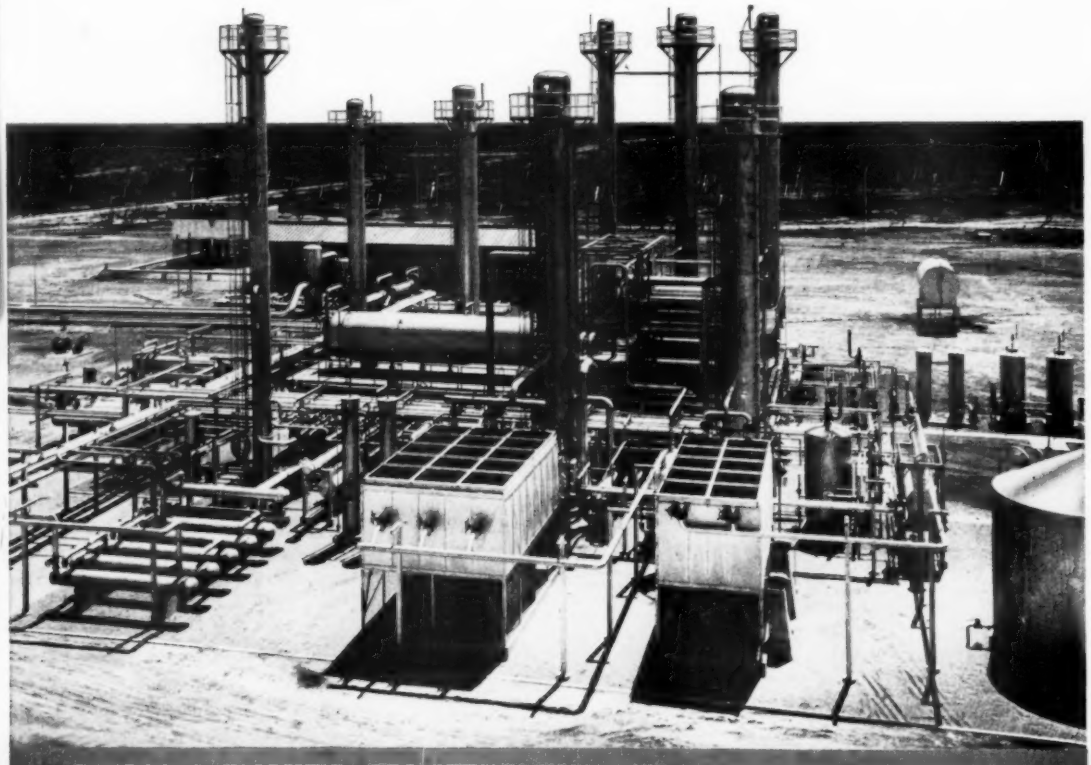
# Water COOLED
# Oil COOLED
# Air COOLED

**G-R**



GRISCOM-RUSSELL PIONEERS IN HEAT TRANSFER APPARATUS

# Heat Exchangers

## all 3 types are in this installation

Here's a striking instance of the broad range of G-R Heat Transfer Apparatus.

In this natural gasoline plant, the G-R equipment consists of *water-cooled* compressor intercoolers, still condensers and product coolers . . . *oil-cooled* lean oil exchangers . . . and *air-cooled* exhaust steam condenser and still reflux condensers.

In addition, the plant also uses G-R Reboilers and a G-R Type H Evaporator.

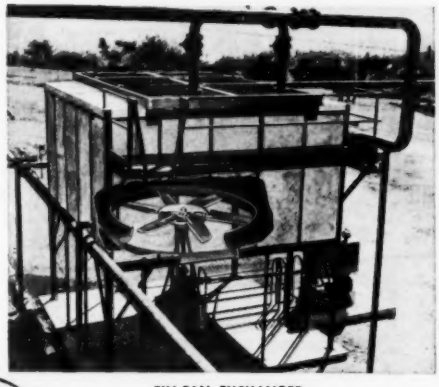
What does this mean to *you?* It indicates, first, that whatever may be your heat transfer processes, there is an exactly suitable G-R design. It indicates, secondly, that whatever may be your plant conditions, G-R can furnish the correct type of equipment to meet those conditions. And finally, it indicates that this plant, like many hundreds of others throughout the oil and gas industry, has preferred and standardized on G-R Apparatus for all heat transfer requirements.

Whenever *you* need heat transfer apparatus, consult the G-R engineers to be sure of best results.

**THE GRISCOM-RUSSELL CO.**
285 MADISON AVE., NEW YORK 17, N. Y.

**G-R TWIN G-FIN SECTION**
The most widely used heat transfer apparatus on the market. Adaptable to a broad range of heating, cooling, condensing and heat transfer services.

**G-R TUBULAR HEAT EXCHANGER**
Available with many different types of stationary heads, floating heads and baffle designs to meet service conditions to best advantage. Has many exclusive design features.



**FIN-FAN EXCHANGER**
Jointly developed by The Griscom-Russell Co. and Fluor Corporation Ltd., to provide an air-cooled unit suitable for cooling and condensing services wherever the water supply is insufficient or of poor quality.

GRISCOM-RUSSELL

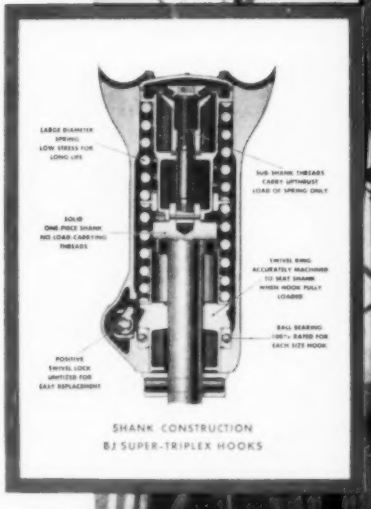
GR-235

# BJ Super-Triplex and Duplex HOOKS

You DON'T buy a hook every day. So when you do, take a good look at the engineering and construction you get. It's *basic* features like these that put BJ Hooks on 9 out of 10 drilling rigs:

***Extra strong weldless construction for today's heavier strings and deeper drilling • solid one-piece forged shank — no load-carrying threads • 100% ball bearing swivel action for easy rotation under all loads • 6 to 8 inch spring travel for "floating" action • rated capacities from 60 to 300 tons • 4 to 1 safety factor • Triplex body for use with a swivel bail • Duplex body for drilling with a swivel bail adapter...the BJ "Stubby" for use where every inch of space in portable masts is required.***

Whether it's slim hole drilling or a new deep try, BJ has the *right* hook for your string of tools. Engineered overall construction and design features are essentially the same from the smallest to the largest BJ Hook. *In the hook you buy* get these *basic* features—buy BJ!


LARGE DIAMETER SPRING: LOW STRESS FOR LONG LIFE
SUB SHANK THREADS CARRY UPTHRUST LOAD OF SPRING ONLY
SOLID ONE-PIECE SHANK NO LOAD-CARRYING THREADS
SWIVEL RING ACCURATELY MACHINED TO SEAT SHANK WHEN HOOK FULLY LOADED
BALL BEARING 100% RATED FOR EACH SIZE HOOK
POSITIVE SWIVEL LOCK UNITIZED FOR EASY REPLACEMENT
SHANK CONSTRUCTION
BJ SUPER-TRIPLEX HOOKS

LOCKING ARM DESIGN
UPPER LOCKING ARMS OPEN FOR EASY ENTRY OF LINKS
AMPLE CLEARANCE DESIGNED TO ACCOMMODATE HEAVIEST SWIVEL BAIL
HEAVY OVERHANGING SECTION TO TAKE POUNDING FROM SWIVEL BAIL
SADDLE TYPE LOWER LOCKING ARM ELIMINATES WEAR TO BODY SECTION

**BJ MEANS ENGINEERED OIL TOOLS**

**Byron Jackson Co.**
*Since 1872*

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Stocking Jobbers All Principal Oil Fields

For special conditions:

# Anaconda Duplex Tubes

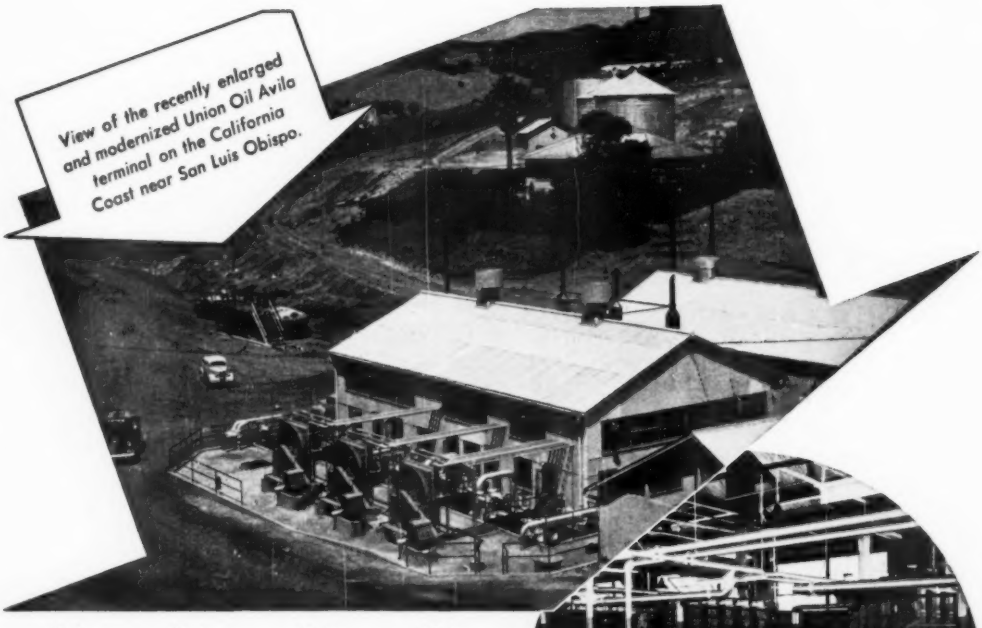
**ANACONDA Duplex Heat Exchanger Tubes** on request are supplied with the ends of the external tube cut back to receive ferrules for rolling into the tube sheet. Ferrules can also be supplied.

**ANACONDA Duplex Tubes** are available in a wide range of metals. These tubes can be supplied with the copper or copper alloy drawn either inside or outside of the steel tubing. For example, in a diethanolamine stripper, a copper-steel combination is called for, with copper on the outside of the tubes to resist corrosive steam and steel on the inside to resist attack by the amine.

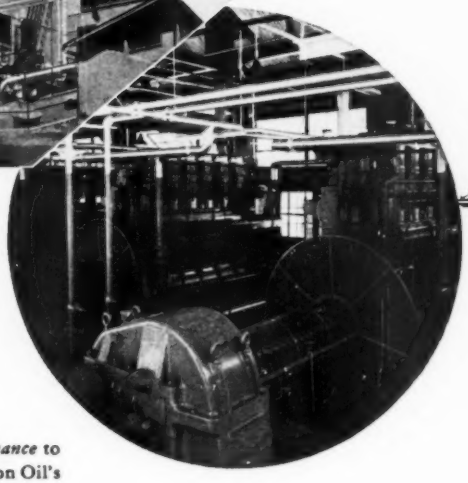
**For general information** on ANACONDA Duplex Tubes write for Publication B-2. And remember that ANACONDA metallurgists are always ready to help you solve your tube problems. Address The American Brass Company, Waterbury 88, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

For efficient heat transfer

# ANACONDA Heat Exchanger Tubes



View of the recently enlarged and modernized Union Oil Avila terminal on the California Coast near San Luis Obispo.



# Moving Crude from Tanks to Tankers

- *one-third faster!*
- *at 20% of former fuel requirements!*

Getting down to brass tacks, there's nothing like *performance* to prove the point on power equipment. That's just what Union Oil's three new Enterprise Diesels are doing at their Avila pumping station. Figures show a reduction of tanker loading time by one-third—coupled with an overall saving of 80% to 90% over former fuel requirements. Rated 20,000 B/H capacity, here's a typical loading operation at Avila that's hard to beat for cost-saving, time-saving efficiency:

**S.S. Lompoc—June 15-16, 1949**

**Drop anchor 5:20 p.m.; discharge 2300 B ballast; discharge 3,000 B gasoline; load 116,000 B 31 gr. crude, 80°F.; on hose 6 hrs., 50 min.; up anchor 1:40 a.m.; average 17,058 B/H—best 4 hr. average 20,030 B/H!**

The flexible, dependable power offered by Enterprise Diesels may well point the way to more profitable pumping operations in *your* plant or station. Enterprise engineers will be glad to assist you in any way they can. A prompt reply will be given your call, letter or wire.

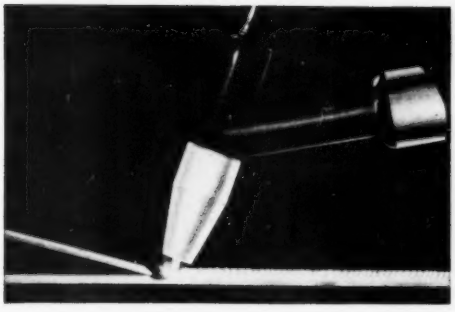
These three model DGSG-6 Enterprise Dual Fuel Engines, rated 460 BHP at 450 RPM, are designed to provide the most efficient service in variable load, variable speed pumping station work. At the Avila Terminal, for example, speeds normally vary from 325 to 450 RPM and from ¼ to full load in intermittent use. Full information on this and other Enterprise Engines in the complete range of models up to 1800 BHP per unit, will gladly be furnished on request.

## ENTERPRISE Diesels

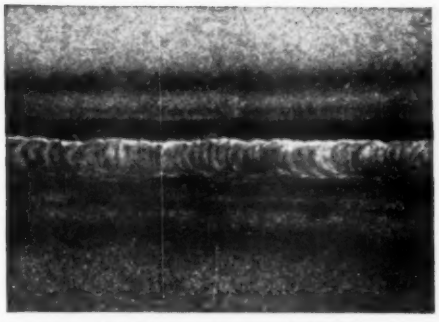
ENTERPRISE ENGINE & FOUNDRY CO.
18TH & FLORIDA STS., SAN FRANCISCO 10, CALIF. *OFFICES IN PRINCIPAL CITIES*

# Weld Sheet Steel with the HELIARC torch

Trade-Mark



## *and wipe out one complete operation*



**AS WELDED** — *This photograph, unretouched and natural size, shows that* HELIARC *welds in sheet steel are clean and uniform.*

There is no spatter or flux, so you save cleaning costs when you switch to the HELIARC process for welding sheet steel. And you keep the advantages of high speed, and minimum distortion that are characteristic of arc welding. Any manual arc or gas welding operator finds welding with a HELIARC torch easy to master.

Porosity-free welds in killed low-carbon steel up to 1/8 in. thick can be made with this process. In non-killed grades, welds are as nearly gas free as can be produced by any welding process. Argon-shielding prevents pick-up of atmospheric gases. No argon is dissolved in the weld.

Joints welded with the HELIARC torch will not show under paint, lacquer, or even vitreous enamel finish. It takes only a light grinding to remove the low, smooth ripple and make the bead flush with the surface.

Get more information on this fast, clean, welding process from any LINDE office. Let us show you how it can improve your product and cut your costs. Just fill in the coupon.

The terms "Linde" and "Heliarc" are registered trade-marks of The Linde Air Products Company.

**THE LINDE AIR PRODUCTS COMPANY**
Unit of Union Carbide and Carbon Corporation
30 East 42nd Street UCC New York 17, N. Y.
Offices in Other Principal Cities
In Canada:
DOMINION OXYGEN COMPANY, LIMITED, Toronto

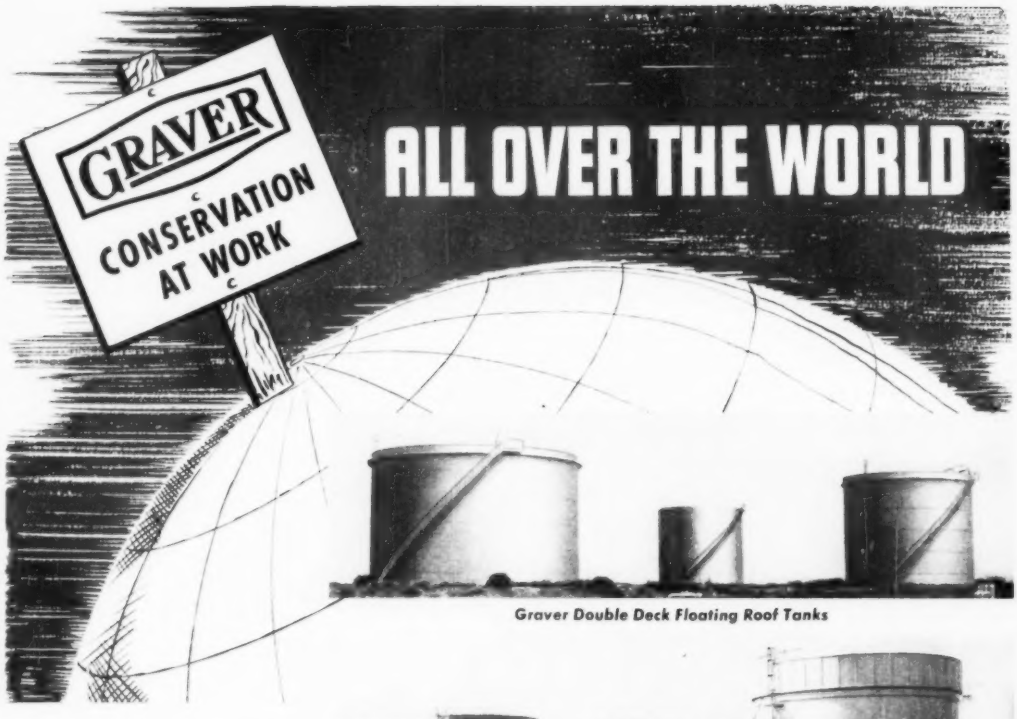
THE LINDE AIR PRODUCTS COMPANY
30 East 42nd Street, New York 17, N. Y.
(or your nearest LINDE office)

Gentlemen: We would like more information on welding sheet steel with the HELIARC torch. We manufacture ..... (Product)
from ..... (Metal) of ..... (Thickness)
We are ☐ (are not ☐) now using inert gas-shielded welding

Name..... Position.....

Company.....

City..... State.....




*Graver Double Deck Floating Roof Tanks*

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*Graverspheres*

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Look at refineries and terminals wherever you go and you will see Graver conservation equipment at work, positively preventing vapor losses for producers, refiners, and marketers. The proven performance of the Graver Expansion Roof makes it the choice of the world's leading oil and pipe line companies . . . and the records of savings with Graver Floating Roofs, Pressure Vessels and Graverspheres are equally convincing.

For complete details and case histories, call a Graver representative—today.

**GRAVER**

**FABRICATED PLATE DIVISION**

**GRAVER TANK & MFG. CO., INC.**

**EAST CHICAGO, INDIANA**

**NEW YORK • PHILADELPHIA • CHICAGO • CATASAUQUA, PA. • HOUSTON • SAND SPRINGS, OKLA.**

## TESCO IS EQUIPPED TO CAST THE BIG ONES!

THIS 30" PIPE LINE CHECK VALVE casting measures five feet long, five feet high and weighs 7000 lbs. It is typical of the large castings which TESCO regularly produces for pipeline equipment manufacturers. Removing risers with acetylene torches, as shown here, is one of TESCO's finishing operations. Grinding, sandblasting and rigid final inspections will assure the equipment manufacturer of a strong, sound casting which will require minimum machining. Let the TESCO Representative show you how steel castings can help you produce stronger, better appearing products at less cost. TESCO is the most experienced foundry on the Gulf Coast. TEXAS ELECTRIC STEEL CASTING COMPANY, HOUSTON, TEXAS.

# The ABC's of Powell Valve PERFORMANCE

Always the right valve. And, because Powell *can* always furnish the *right* valve, you can avoid failures that result from trying to make a valve "do" in a service to which it is not *specifically* adapted, as well as those caused by misapplication.

Built to last. Powell Valves are designed for long life at a minimum cost of maintenance. The cost of construction and materials of any Powell Valve is determined solely by the requirements of the service for which the valve is designed.

Complete Line. Powell Valves are made in all types such as Globe, Angle, "Y", Gate, Check, Non-return and Flush Bottom Tank. Materials include not only Bronze, Iron and Steel but also a wide range of Corrosion-Resistant metals and alloys.

**Ask your nearest Distributor—or write direct**

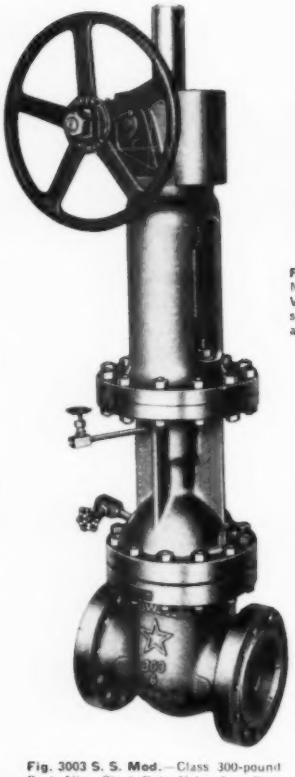


**Fig. 3003 S. S. Mod.**—Class 300-pound Cast Alloy Steel Gate Valve for ultra-high temperatures. Has cooling fins to reduce temperature in the stuffing box. Bevel gear operated.

**Fig. 1460**—Iron Body Bronze Mounted "Master Pilot" Gate Valve, with screw ends, rising stem, bolted flanged bonnet and tapered solid wedge.

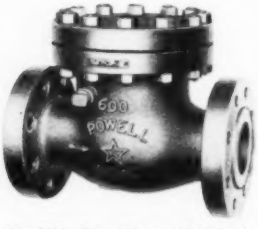



**Fig. 6061**—Class 600-pound Cast Steel Swing Check Valve with flanged ends and bolted cap. Disc has ample lift to permit full, straightway, unobstructed flow through valve body.

**Fig. 1375**—200-pound Bronze Gate Valve with screwed ends, inside screw rising stem, union bonnet and renewable, wear-resisting "Powellium" nickel-bronze seat rings and disc.

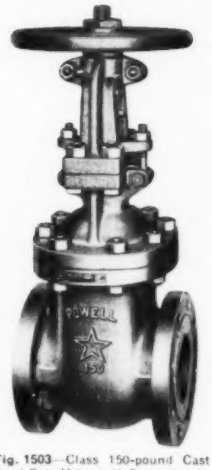



**Fig. 1503**—Class 150-pound Cast Steel Gate Valve with flanged ends, outside screw rising stem, bolted flanged yoke, tapered solid wedge.

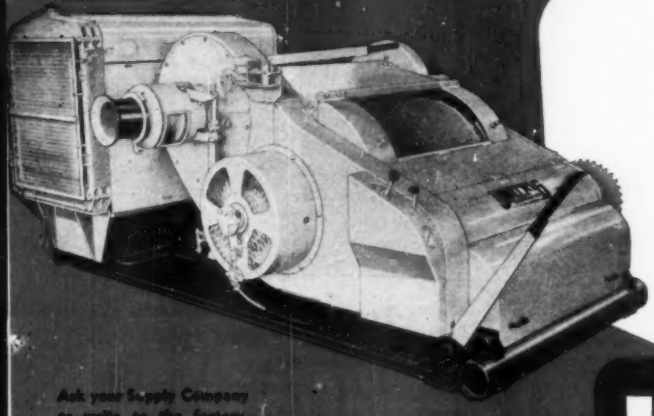
**The Wm. Powell Company**
**Cincinnati 22, Ohio**
**DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES**

# POWELL VALVES

# NOW you can get...

# IMMEDIATE DELIVERY!

## OF THE *Smoothest* OPERATING SHALLOW DRILLING RIG YOU EVER SAW! UNIT RIG'S U-34



Ask your Supply Company or write to the factory.

Production has been stepped up to take care of the huge demand for the popular U-34. If you need an extra dependable rig for drilling to 4,500 feet or for well servicing, take delivery of a new U-34 NOW.

UNIT RIG & EQUIPMENT CO.
TULSA, OKLAHOMA U.S.A.

Exclusive Export Representative
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42 Broadway, New York City
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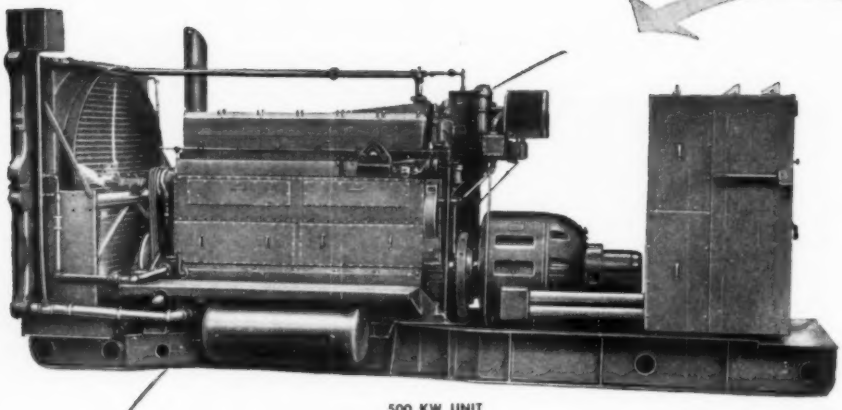
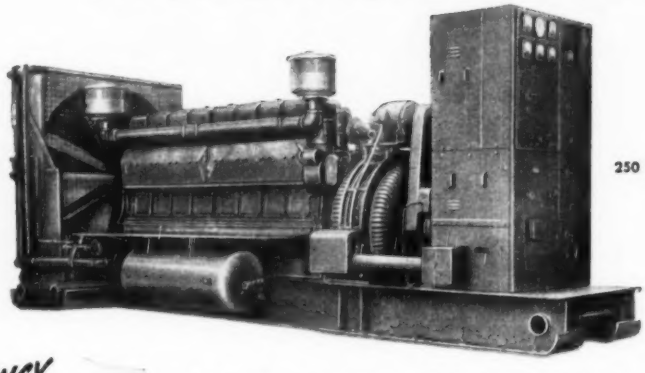
DESIGNED FOR THE JOB...



500 KW UNIT

# At the very spot where power is needed

*Complete range of sizes from 90 KW to 1200 KW.*



250 KW UNIT

## EFFICIENCY PLUS ECONOMY

**LOW FUEL CONSUMPTION** results from efficient design of combustion chamber, valve mechanism and fuel injection system.

**INSTANTANEOUS STARTING** is assured by simple starting valve which admits air through distributor. The distributor, in turn, admits air at timed intervals to each cylinder.

**DUST-TIGHT COVERS** completely enclose all wearing parts, but are easily removed for inspection.

**LUBRICATION** is completely automatic force feed, resulting in exceptionally low maintenance.

**EVERY PART** is designed with ample strength for maximum rigidity with minimum weight assuring long service life.

**CP PACKAGE UNITS** . . . Diesel or Dual-Fuel Generator Sets . . . are another outstanding achievement of Chicago Pneumatic's thirty-four years' experience in engine building.

Designed to meet oil field needs for a complete, conveniently transportable source of power for remote locations. Easily installed, instantly started, these units are readily adaptable to every power requirement.

Furnished complete with piping, wiring, and all accessories . . . ready for operation . . . they can be set up quickly and easily . . . with minimum installation expense. Write today for complete information.

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PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

# now available to overseas operators...the

# Electric Pilot

*The Dowell developed Electric Pilot consists essentially of a power driven reel, insulated electric cable, power plant, and suitable recording apparatus. This unit will provide reliable information on subsurface well conditions and materially aid the planning of more productive completion and workover programs.*

ELECTRIC PILOT TRUCK. Specially fitted panel truck houses the entire mechanical and electronic hookup.

SELECTIVE ACIDIZING ELECTRODE. Lowered into well on conductor cable. Surface instruments indicate fluid in contact with electrode. Used in Selective Acidizing Surveys.

CONTROL PANEL. All necessary controls, meters and recording instruments are at the operator's finger tip.

ICI SPINNER (a subsurface flow rate indicator) Runner is turned by fluid passing in either direction. Automatic counter in Electric Pilot truck indicates revolutions.

Formerly operated only in the U.S. by ICI and Dowell, this profitable equipment for locating more oil may now be purchased for use outside the United States.

Under ICI's new plan you send an engineer of your choice to ICI's training school at Long Beach, California. Here your man receives both technical and practical field training under a tried and proven plan.

At the completion of his course, your man returns an experienced Electric Pilot Engineer, ready to direct and perform the following money-making services on your wells:

**PERMEABILITY PROFILE SURVEYS**—to show location, thickness and relative permeability of zones.

**CALIPER SURVEYS**—to measure, sharply and accurately, irregularities in the well bore.

**SPINNER SURVEYS**—to measure rate of flow of fluids including gas from or into exposed zones or sections.

**WATER LOCATING**—to give an accurate location of the points of water entry in wells.

**SELECTIVE ACIDIZING**—to put well-treating chemicals into the *selected* zone in order to secure the best results.

The cost of this training and equipment is lower than you may think . . . write today for a complete proposal.

ICI Oilfield Equipment

**INTERNATIONAL CEMENTERS, INC.**

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"T.I.P.S.A." Avenida Roque Saenz Pena 501, Buenos Aires, Argentina, S.A.

# this

**is the tool that is revolutionizing drill string protection on today's wells!**

# The SHAFFER-WAGGENER BUMPER SAFETY JOINT

This is the *only* tool of its kind—the ONE tool that combines BOTH *Jarring* and *Releasing* action—each under the full control of the operator—for protecting modern drill strings, whether deep or shallow. And not only does it combine in *one* tool the protection usually requiring several tools, but it also provides unique operating advantages *found in no other single tool or combination of tools!*

## Briefly, here's how it operates . . .

### TO USE AS A BUMPER SUB

you need only slack the weight of approximately 2,000 feet of drill string upon the Bumper Safety Joint. This weight actuates a positive tripping mechanism which trips *automatically*, allowing the tool to strike a sharp downward blow. Raising the pipe then *automatically* resets the tool for another blow. Blows can be struck repeatedly and continuously by simply raising and lowering the drill string.

### TO USE AS A SAFETY JOINT

for quick release from stuck drill collars in the event they cannot be loosened, you simply slack the tripping weight of the string on the Bumper Safety Joint and apply left torque as the string is slowly raised. The slight reverse torque rotates the drive keys into an unlocking slot similar to a "J" tool, so that, by simply continuing to raise the string, complete release from the lower portion of the drill string is effected. Further, the mandrel remaining in the hole is smaller in diameter than the drill collars, thus greatly facilitating fishing operations in tight holes!

## TYPICAL SERVICE RECORDS

**On job after job—from the shallowest wells right down to world's record depth—the Shaffer-Waggener Bumper Safety Joint is bringing new safety, new efficiency to modern drilling operations. Here are a few typical accomplishments . . .**

● The Shaffer-Waggener Bumper Safety Joint has been used successfully in extreme directionally-drilled wells where a slant of 60° was maintained.

● The Shaffer-Waggener Bumper Safety Joint has been released and reconnected from a 30° angle at a depth of 8,500 ft.

● At 16,883 feet in the world's deepest well the Shaffer-Waggener Bumper Safety Joint proved invaluable in simplifying a recovery operation. A Bumper Safety Joint was being used between the drill collars and drill pipe when the string parted going into the hole, dropping over 2,400 feet of pipe and drill collars 5,000 feet to the bottom of the well at 16,883 feet. The top of the fish was gripped with a socket and the Bumper Safety Joint released, immediately recovering 2,100 feet of drill pipe. The upper part of the Bumper Safety Joint was then run back into the hole below a set of jars, reconnected to the lower half of the Bumper Safety Joint and—after jarring—the drill collars were completely recovered, leaving the hole clean.

***Note: For maximum protection many operators are using the Bumper Safety Joint above wash-over strings to facilitate recovery should the string become stuck.***

**Whether used as a Bumper Sub or as a Safety Joint, the Shaffer-Waggener Bumper Safety Joint provides unique advantages found in no other tool—advantages too numerous to outline here but which are described in detail in a descriptive bulletin which will gladly be sent you on request. Send today for your free copy of this informative eight page bulletin!**

27 YEARS OF OIL TOOL LEADERSHIP

# SHAFFER

**HIGH PRESSURE DRILLING AND CONTROL EQUIPMENT • FISHING TOOLS THAT EXCEL**

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OKLAHOMA CITY, OKLAHOMA, Acme Oil Tool Company, 1001 S. E. 29th Street
CASPER, WYOMING, Shaffer Tool Works, Post Office Box 1788
EXPORT SALES OFFICE: Shaffer Tool Works, 500 Fifth Avenue, New York, N. Y., U.S.A.

# They Say—

### Residuum Problem

"During the past 2 years the oil companies in California have put approximately 26 million barrels of fuel oil into storage. The investment that is frozen until this oil can be sold represents a sizable chunk of 2 years' profits. An income tax has been paid on it, although the cash to pay the tax had to come from other sources.

"The various companies are taking several kinds of corrective measures to work off their fuel-oil inventories. Some are shipping fuel oil to the Atlantic Coast, although the shipping costs are so high that they leave the Pacific Coast seller with an unattractive realization. Some, including ourselves, have reduced the supply by shutting in wells.

"Our own company's successful experience in coking operations has led it to increase its coking plant capacity by 50 per cent. This project is now under way. It will permit us to use our unsold residuum as a charging stock in these plants, transforming it into gasoline and middle distillates for which there is a market. In this way we shall be able to change the percentage yields to conform with the changes in market demand, making more gasoline and less fuel oil from a given amount of crude oil."

*Doings in General, General Petroleum Corp.*

### Competition From Gas

"Individually and collectively we must plow back a portion of our earnings to be used for the creation of public good will.

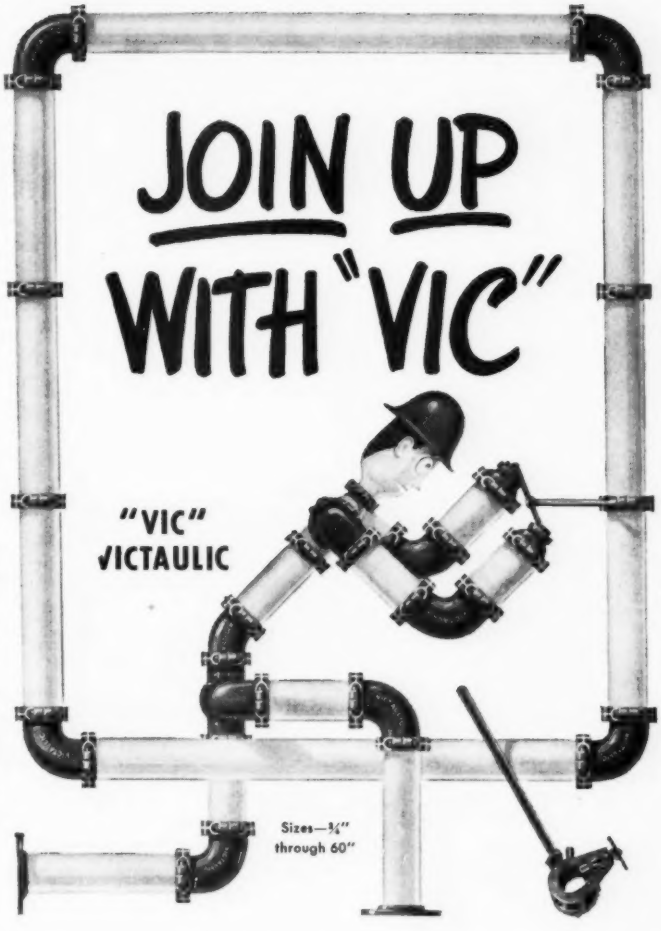
"If we wait until we have the gas-company salesman knocking at our prospect's door, it will be much more expensive. . . .

"An attitude of complacency on the part of oil marketers is the very thing which is most likely to speed up the arrival of gas by an increase in latent demand."

*H. B. Van Cleave, Maritime Petroleum Corp., addressing Long Island Oil Terminals Association.*

### Growing Reserves

"The American oil industry has periodically been reported on its last derrick-legs ever since its birth in 1859. In 1919, for example, David White, chief geologist of the U. S. Geological Survey, estimated our total oil supply—known and yet to be discovered—at less than 7 billion bar-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rels, barely enough for 15 years. Yet in the past 30 years American oil men have found more than eight times as much oil as White believed existed, produced seven times as much as in the 60 years preceding, and still left on tap nearly 27 billion recoverable barrels, largest known reserves in our history.

"The magic which has accomplished this miracle is the conservation technology of oil men themselves."

*North Bigbee, as quoted by Reader's Digest.*

### Distribution Progress

"We can move a gallon of oil, weighing about 7 lb., from Texas to Boston cheaper than we can mail a post card the same distance—because of scientific distribution.

"The greatest future savings, for both the public and business, are bound to come in the field of distribution. Production has already been raised very nearly to peak efficiency by means of scientific and engineering principles, and we cannot expect that it will continue to gain in efficiency at the rate it has in the past. We will make our real progress in the years ahead by applying to distribution the same scientific and technological skills that have made manufacturing the marvel of the past half century."

*Stokes Tomlin, Shell Oil Co., addressing New England Sales Conference, Boston.*

### News-Stand Sales

Sir:

I have tried to buy your Journal at various news stands but find they do not sell them.

I would like to subscribe for your Journal so please inform me as to the rates. . . .

E. W. BARNES, Chappell, Neb.

*Editor's Note: The Journal has not been sold on news stands since April 1944. News-stand distribution was discontinued because it was not possible to identify the purchaser as to occupation and connection with the oil industry. The Journal is, as you know, edited and published for oil men—only.*

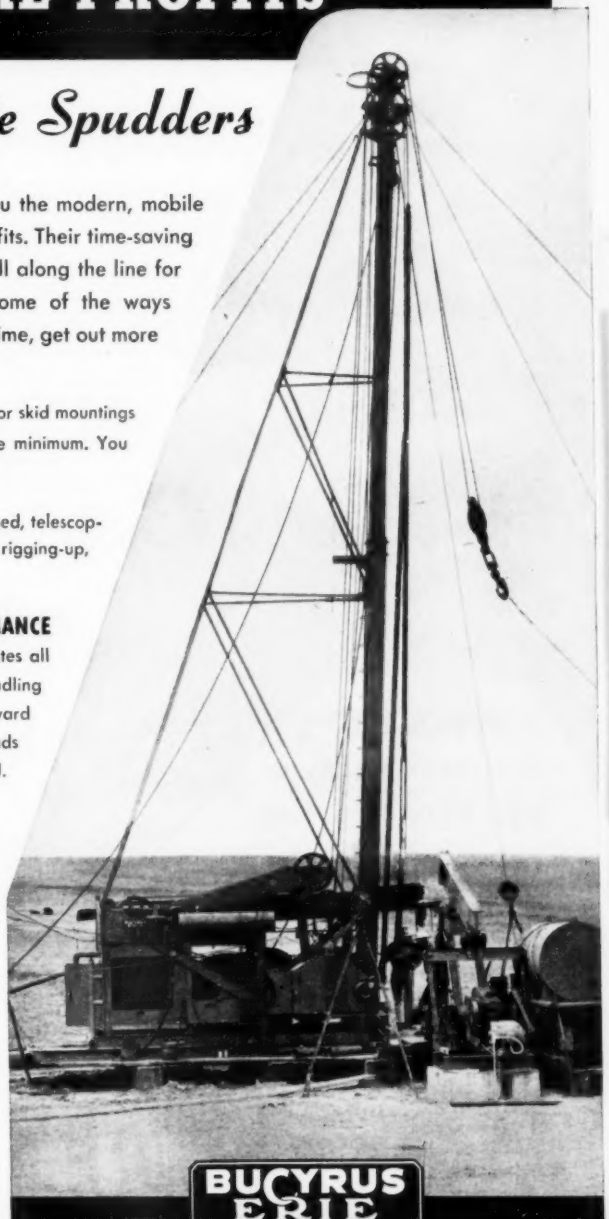
### Cost Cutting

"Stiffer competition amidst rising costs is here—and here to stay. Previous articles . . ., dealing with cutting down on waste and operating costs, have shown that everything that adds to the cost of production weakens our company's competitive position and everything that reduces cost strengthens it.

"One of the items we all frequently waste is time . . . seconds which add up to minutes, minutes which make hours and hours which mean days

# GET IN MORE WORKING TIME
# GET OUT MORE PROFITS

## *with Bucyrus-Erie Spudders*



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**GAIN TIME ON RIGGING-UP** — Power-raised, telescoping derricks and folding tubular braces speed rigging-up, mean extra working time on every job.

**GAIN TIME THROUGH EFFICIENT PERFORMANCE** — Sharp, snappy spudding action quickly penetrates all formations. Fast hoisting speeds save time in handling tools, bailer, casing, tubing and rods. Two forward speeds and one reverse on all drums and catheads (except 24-L) permit accurate split-second control.

**GAIN TIME THROUGH DEPENDABLE OPERATION** —You'll have a minimum of "down-time" with Bucyrus-Erie spudders. Their rigidly braced frames are built entirely of steel, all welded — no rivets, hold machinery in lasting alignment.

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over a period of months. If each one of us wasted a minute a day, it would mean a loss in production equal to more than 30 hours. Such a loss hits all of us, employes and management alike, right where it hurts—in the pocketbook!"

*Refinery News, Bayonne refinery of Tide Water Associated Oil Co.*

### No Hurry for Synthetics

"With the return of a more nearly normal increase in oil demand and with greatly increased world petroleum supplies, it now appears that the need for converting coal into oil is not pressing, thus allowing time for further basic small-scale research.

"When coal conversion is required, experience abroad and research carried out by Standard Oil Development Co., the Pittsburgh Consolidation Coal Co., and others assure a workable process."

*The Stanoclan, Baton Rouge Refinery, Esso Standard Oil Co.*

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"By appropriate engineering changes, based in part upon better gasoline . . . and in part on refinements in design, fuel economy in ton-miles per gallon has over the past several years been boosted in sum total by about 30 per cent.

"On the huge gasoline bill of the nation today that improvement represents a yearly saving to the public of more than $2,000,000,000. In terms of conservation of our valuable resources of petroleum, that same saving represents all the gasoline to be obtained from the output of about 1,500 oil wells, each producing 1,000 bbl. a day."

*T. A. Boyd, General Motors Research Laboratories, addressing engineering students at Ohio State University.*

### Union's Research

"At the present time our research department consists of approximately 250 people. Of this number there are 110 chemists, 16 engineers, 110 technicians, 14 clerical employes. . .

"Our yearly budget for research amounts to approximately $2,000,000. This amount is spent in the following manner: 65 per cent of $1,300,000 is allocated for salaries of the employes; 11 per cent or $220,000 is allocated for materials and supplies; 14 per cent or $280,000 for pilot plants and laboratory equipment; and 10 per cent or $200,000 is allocated for maintenance."

*C. D. Swift, vice president, Union Oil Co. of California, in speech at ground-breaking ceremony for new research center at Brea, Calif.*

# *Reduces* SHUTDOWN TIME ✓ CAR MILEAGE ✓ MAN HOURS

*For the Jack Grace Drilling Company*
*Wichita Falls, Texas*

PROFITABLE drilling calls for fast action in emergencies. Because quick decisions are necessary when making hole, more and more drillers are using General Electric narrow-band 2-way radio for *instant communication* between rigs, offices, and vehicles on the road.

With the Jack Grace Drilling Company of Wichita Falls, G-E radio is a must. Says J. A. Fowler, General Superintendent:

"*Our G-E radio communication system has been of material assistance to us in eliminating rig shutdown time due to breakdowns. It has also reduced car mileage and man hours and has given us more efficient supervision over our scattered locations.*"

By using radio, superintendents and pushers find they can control operations at several rigs instantly and more efficiently—and still get more rest, more time of their own than they had before. Contractors like the way G-E 2-way radio saves money, builds morale, helps get and hold top-grade men.

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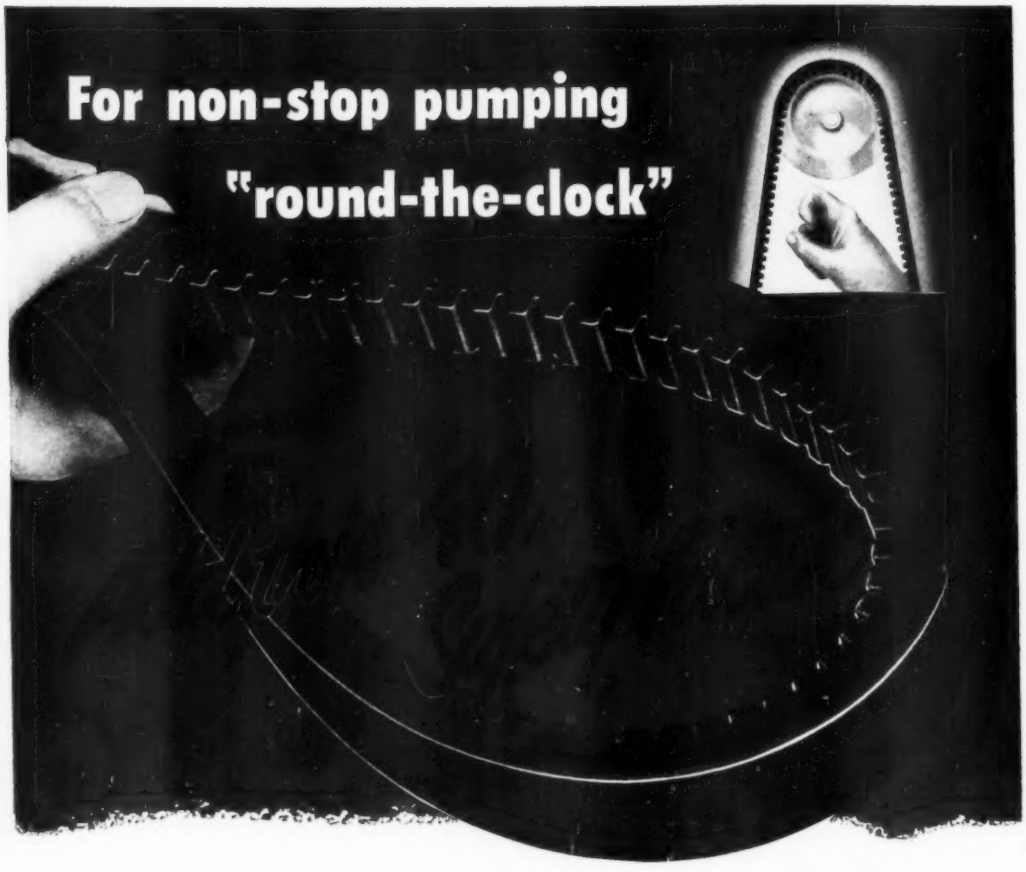


# 40% more H.P. per belt with Dayton Cog-Belts*

On well pumps, slush pumps, compressors, Dayton Cog-Belts give the best assurance of continuous operation, free from breakdowns. They can deliver 40% more horsepower—are, in effect, 40% stronger—because they grip better.

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# JOURNALLY Speaking

## Trouble With Figures

TROUBLE with figures is they have to be accurate to be any good.

That's why our statistical staff went to so much trouble with the 90 pages of figures in this issue. These figures are good.

To collect the details on what the far-flung and fast-moving petroleum industry did last year really was a lot of trouble. The trouble lasted all through the year, as a matter of fact. Every week our boys and girls kept up to date a set of books on the industry, entering such items as drilling, completions, footage, successes, and production by states and even counties.

They sent out questionnaires to every operator of record, asking exactly what he did last year and what he intends to do this year, and where. Then a lot more tabulating and checking, right up to the day the presses started rolling with this issue.

And in the process of getting a relatively few over-all total figures we managed to collect enough detailed figures to fill 90 printed pages. And, brother, that's a lot of figures. If you don't believe us, read them all and then judge for yourself.

## More Trouble

ANOTHER trouble with figures is that they have to be current to be any good.

Our whole staff would get a lot more sleep during December and January if we waited for the figures to come in instead of hot-footing after them.

But the fast-moving oil industry needs its figures fast. Any earlier date would miss a few but vital reports on the final results of the past year. Any postponement would be failure to serve the industry properly.

And we're none too early, at that. We know that because of the flock of requests that have been coming in during the past couple of weeks. A lot of oil companies want to know immediately if not sooner just what the Journal says about wells drilled and to be drilled, proven reserves, and the other factors on which 1950 plans can be based.

It's more trouble to get the figures out early, but we know it's worth it.

## Why Trouble?

WHY do we go to all the trouble to collect all these figures quickly and accurately?

It's not just because we enjoy the mental exercise, like being the first to solve a puzzle.

It's because we know the oil industry needs these figures. How do we know? Because hundreds of operators, big and little, tell us so. They use this statistical issue in planning their operations, and they keep it on file for reference through the year.

If the industry didn't get so much good out of our figures we wouldn't get so much help out of the industry. We couldn't possibly compile these records and these forecasts if hundreds of companies and individuals had not given us, in confidence, detailed reports on what they did and what they plan.

The tentative budgets and operating programs of most of the companies were drawn 2 or 3 weeks ago, and these form the basis of most of our forecasts. But quite a few companies are holding up their final plans until they can study this issue.

## No Trouble

WHILE it was a lot of trouble for us to prepare this issue, it should be no trouble at all for you to read it, or at least to get the highlights quickly.

Starting with the thumb-nail summary on page 173 you will find the material divided, arranged, and presented in the most painless ways our statisticians, artists, and writers could devise.

Graphs, charts, and summary tables show the high spots virtually at a glance, and the details follow later.

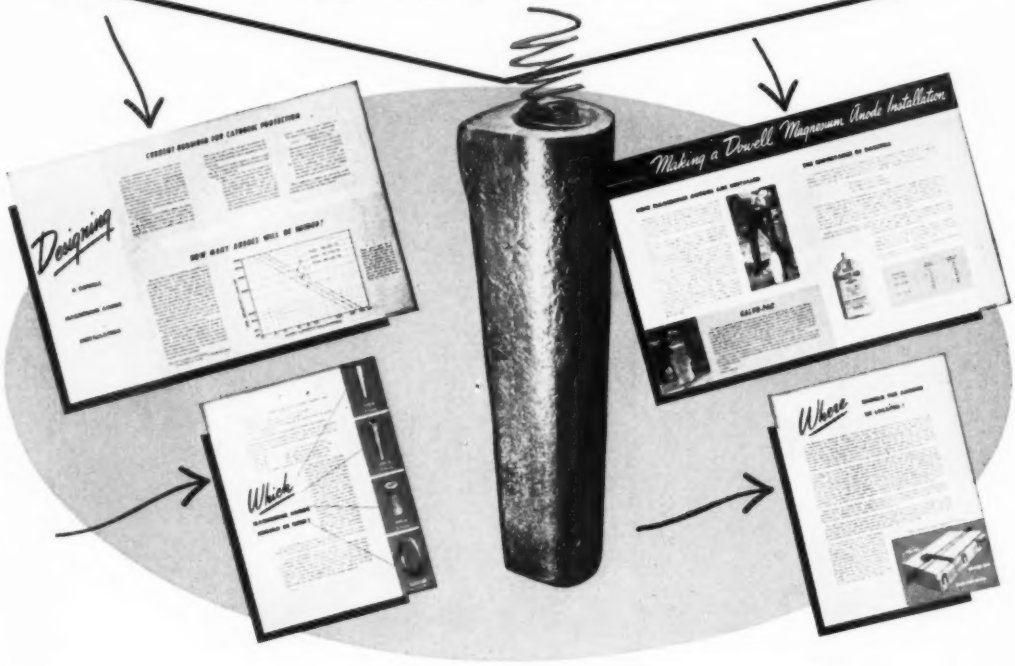
If you can't find something of use or of interest here, then you are a person who never has to trouble with figures.

*Henry D. Ralph*

# DOWELL MAGNESIUM ANODES

## *Help you control corrosion of underground metal*

## *Free booklet tells you how!*




Do you have all the facts on this low-cost, effective means of protecting buried metal against corrosion? Here is a new booklet filled with basic information on the use of Dowell magnesium anodes for control of corrosion on pipe lines, tank bottoms, and other types of buried metal.

This 16 page illustrated booklet will give you the fundamentals of the use, design and installation of effective magnesium anode installations. It explains how to calculate adequate current requirements, the number of anodes required, and the type anodes to use. Other points covered are how to locate the anodes for maximum effectiveness and the recommended procedure for installation.

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Title _____ Firm _____

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the OIL AND GAS JOURNAL

VOL. 48, NO. 38 JANUARY 26, 1950

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# BAKER CASING SCRAPING WILL SAVE YOU MONEY, AND TIME, AND TROUBLE

There now are two types of Baker Casing Scrapers which safely, efficiently and economically remove bullets, burrs, hardened cement or mud, and even mill scale from the important "working surface"—the inside wall of the casing.

The results are so satisfactory that many operators now consider the use of a Baker Casing Scraper a "must" in well completion, or after every gun-perforating job.

### CHOOSE THE TYPE TO EXACTLY MEET YOUR NEEDS

While the rotary rig still is up, and only hardened cement or a limited number of gun-shot burrs are to be removed, the time-tested Baker MODEL "B" Casing Scraper (Product No. 620-B) is recommended. It is usually run just above the bit while drilling out cement, and will completely remove protruding burrs as well as the thin sheath of cement left even after the maximum gauge bit has been used for drilling out.

When there are several hundred gun-shot holes (with possible imbedded bullets); or if the hardened mud sheath is to be removed from top to bottom of the well, the new Baker ROTO-VERT Casing Scraper (Product No. 620-C) is recommended. The ROTO-VERT can be run on drill pipe for successful vertical scraping of obstructions as it is being lowered in the hole; followed by rotation if difficult well conditions make rotation necessary or desirable. Or it is run on tubing or a wire line for successful all-vertical scraping.

Either method leaves the inside wall of the casing "clean as a hound's tooth" safe for testing and completion, and ready also for all future down-hole work a year or ten years in the future.

### NEW ROTO-VERT IS SAFE AND POSITIVE

The strong, simple construction of this efficient scraper is evident from the illustration which shows the rugged body on which six blade blocks are mounted, and held in position by blade block retainers. The blade blocks are set in two horizontal rows in a staggered position so that the blades overlap and will scrape the full 360° inside wall surface of the casing. The shearing edges are cut on a helix angle and provide a scraping, or shearing, action both while moving down the hole and while rotating. The thrust of each blade block, when rotating, is taken by a driving block which is welded to the body. Springs behind each blade block hold the heavily hard-faced cutting edges against the inner wall of the casing where they exert positive shearing action. ROTO-VERT blades will never screw down past a casing burr because their scraping edges follow the contour of a LEFT-HAND SCREW.

Contact the Baker representative in your area and find out how the reasonable rental is mighty cheap insurance for having *every* well in perfect condition for running tubing or liners, as well as any type of swab, tester, packer or cementing device.

**BAKER**
**Casing Scraping**
**always pays**
**its way**

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# A Transition Year

THIS Review and Forecast Number reveals that 1949 was a transition year in which the domestic oil industry moved from conditions dominated by war and postwar activities to the start of a more normal period.

The emergency and the three succeeding years brought maladjustments to the oil industry everywhere, a reflection both of restrictions in operations during the war and the basic changes and large increases in demands that took place then and later. The oil industry, through unprecedented expansion in facilities, was able to avoid shortages in supply. By mid-1948 operators had caught up with demands, and as a safety measure stocks of crude oil and products were increased more than 100 million barrels that year.

By late 1948 it was apparent that certain phases of the oil industry's operations were out of balance, and the past year has been largely utilized to correct these conditions. In the face of a leveling off in demands it was necessary last year substantially to curtail crude-oil production, with a smaller reduction in refinery operations.

Inventories of crude oil and some products are more in line with needs. Gasoline has resumed its controlling position in the operation of most refineries. Residual oils and middle distillates have receded from their premium market position, and this fact in turn has brought price declines in the lower-gravity crude oils.

Outside this country adjustments have been more difficult and are still in the making. Political rather than operating conditions too often have been controlling in what has been done. But it is now certain that foreign oil supplies are more than adequate for foreign needs, with the resulting increased imports to and decreasing exports from this country a major factor in arriving at a healthy balance in domestic operations.

In evaluating the developments of the year some have assumed that shortly the oil industry will revert to a prewar status. That, of course, is impossible. As revealed in the several studies of future petroleum needs and operating programs in this issue, a return to past levels in any important phase of oil activities is inconceivable.

Domestic crude-oil production last year was 45 per cent greater than it was a decade earlier, and production outside the United States increased 90 per cent for the same period. In this country total oil demands in 1949 were 43 per cent greater than in the year which brought Pearl Harbor, including gains of 37 per cent in gasoline and 92 per cent in distillates.

Obviously an industry which has had such large increases in demands will not shift back to the production levels of 5 and 10 years ago. Furthermore there are new standards in production methods and in quality of all products which make obsolete the operating practices of the past.

Thus with a transition period completed, the job ahead is not to look back but to forge ahead to new responsibilities and new opportunities.

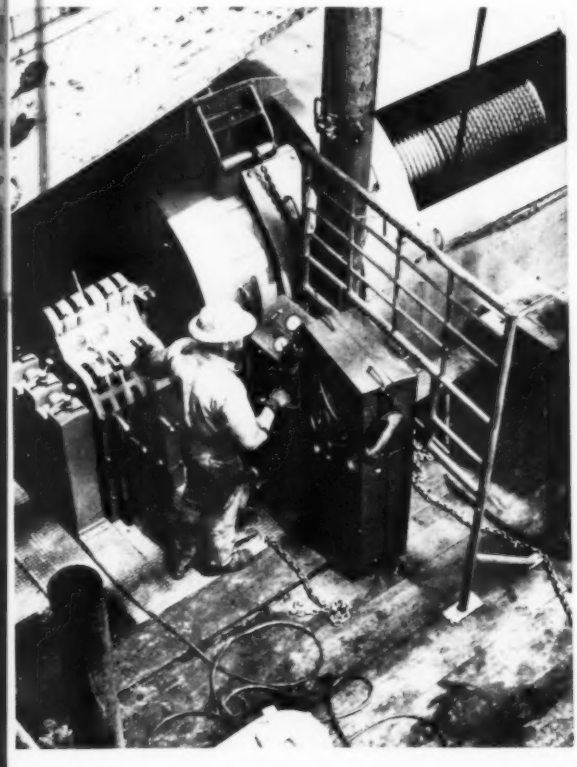
# THIS WEEK

**FORECASTS**—Total spending by oil industry this year will be about the same as last, though with different allocations among divisions. . . . ¶U. S. demand, crude production, refinery runs will be up. . . . Exploration about the same. . . . Drilling down slightly in total wells. . . . Reserves at record high. . . . Large construction programs under way. . . . Record year for pipe-line building.

**REGULATION**—Oklahoma Supreme Court rules Corporation Commission has power to fix minimum field price for natural gas. . . . Says power is necessary part of authority to promote conservation. . . . First such case in United States. . . . ¶Oklahoma Commission cites economy in drilling and profit for operators as reason for ordering wide spacing of oil wells. . . .

**IMPORTS**—Pressure builds up against heavy imports. . . . Further cut in Texas allowables blamed on foreign oil. . . . ¶Texaco and Shell announce voluntary reductions in previous plans for large imports during 1950. . . . I.P.A.A. and NPC meetings in Washington this week discuss problem of imposing limitations. . . . ¶Imperial Oil insists it will not sell Canadian crude in this country.

**ACTIVITY**—Daily average crude production for the week ended January 21 was 4,876,175 bbl., an increase of 26,625 bbl. over the previous week. . . . ¶Total well completions dropped to 716 wells compared to 817 the previous week and 719 the same week last year. . . . Wildcat completions were off 21 wells from the week before but were 15 wells more than the same week in 1949. . . . ¶Rotary rigs operating in the United States on January 16 totaled 1,991 rigs, or 34 rigs less than on January 9. . . .



**TAXES**—Depletion allowance for oil and gas heavily attacked by President Truman as "loophole" in message asking higher taxes from corporations. . . . ¶Specific proposals for change await Treasury recommendations. . . . Suggestions may be to reduce rate or to terminate allowance when investment is recovered. . . . Bitter congressional fight looms. . . . ¶Oil industry mobilizes to prevent change in law. . . . Contends change would reduce exploration and discovery. . . .

**TRENDS**—In the 12-month period ended January 14, major product stocks increased 16,360,000 bbl. in California and decreased 9,050,000 bbl. in other areas for a nation-wide increase of 7,310,000 bbl. . . . California, with about 15 per cent of total gasoline stocks, accounted for 59 per cent of the 12-month increase in gasoline inventories. . . . Residual stocks east of California are down 10,872,000 bbl. from last year while West Coast stocks are up 7,154,000 bbl. despite shipments to the East Coast. . . .

**INTERNATIONAL**—Crude production outside United States continues to increase. . . . November figures by countries show world output is near record level of late 1948. . . . ¶Qatar now shipping crude to world markets. . . . Development, interrupted by the war, has been completed and pipe-line and terminal facilities add this shiekdom to the group of Persian Gulf exporters. . . . ¶Reconstructed Dunkirk refinery resumes operation after 10-year lapse. . . .

**REFINING**—Pontiac Refining Corp. and Chicago Corp. announce plans for $15,000,000 chemical and refining operation at Corpus Christi following successful bid on Great Southern Corp.'s 100-octane gasoline plant. . . . ¶Socony-Vacuum Oil Co., Inc., lets contracts for construction of two new modified Thermofor catalytic cracking units at Brooklyn and Buffalo. . . .

**PIPE LINES**—Contracts awarded for construction of Salt Lake Pipe Line Co.'s products pipe line from Boise, Idaho, to Pasco, Wash. . . . ¶Panhandle Eastern Pipe Line Co. announces plans for increasing capacity of its system to serve the Middle West and Canada. . . . ¶Lavaca Pipe Line Co. will lay 3,500-ft. aluminum pipe under water in Matagorda Bay. . . .

*DRILLING PREVIEW.—Just as much hole will be drilled this year as last, though the total number of wells will be about 4 per cent fewer. This is the finding of the Journal's drilling survey, part of the annual review and forecast section starting on page 173 of this issue. Other articles in the section give detailed reviews of all phases of the oil and gas industry during 1949 and forecast operations for 1950.*

## SPECIAL REPORT

# Heavy Spending in 1950

### Company budgets indicate greater outlay this year for exploration, development; pipe lines to get big amount

**Henry D. Ralph**

THE current year will be one of heavy spending by the oil industry for capital improvements and current operations.

This is evident from advance budget figures of the larger oil companies supplied to The Oil and Gas Journal this week.

To supplement the Journal's estimates of activity in the industry, which appear in the Annual Review and Forecast Section of this issue, the editors telegraphed the presidents of 30 large, representative oil companies requesting significant figures from their 1950 budgets and comparisons with 1949.

Not all the companies are in position to announce their budgets at this time, but the replies received are illuminating.

They indicate that spending, overall, will be only slightly, if any, below last year.

There is a rather general trend toward heavier expenditures for exploration and development of crude supplies. And many individual budgets show huge increases for pipe-line construction.

These trends reflect very closely the forecasts of drilling, refinery construction, and pipe-line construction tabulated in the special section of this issue.

**No marked change.**—Typical is this comment from the president of a large major who explained that his budget is not yet completed in detail:

"It is anticipated that our capital expenditures for 1950 will be slightly less than the total of such expenditures for 1949. A continuation of the same general high level of activity in exploration, drilling, and production is planned.

"In the refining end of our business, we feel that we have passed the peak of our postwar rehabilitation and expansion program and a somewhat lower level of capital expenditures for manufacturing facilities is expected. The same may be said for marketing, but here we anticipate increases in capital expenditures on some items, including product handling and terminaling facilities which are designed to improve the efficiency of our operations.

"From an over-all view of our company and the industry, we look for no marked change in activity during 1950."

And this, from one of the smaller majors:

"We are still working on the figures, but from present information our budget for the current year will closely approximate the amount spent in 1949, although there will be a shift in allocations as between the various divisions."

**Some will cut.**—On the other hand, a company with extensive foreign operations replied:

"Our 1949 financial statements are not completed and 1950 provisions are still under review. Best indications now are that Western Hemisphere expenditures will probably be about 30 per cent less than 1949. We know you understand that 1949 expenditures brought to completion many projects initiated in 1948 and 1947 when the need to expand facilities resulted in an extraordinary high level of expansion."

A similar cut of about 30 per cent in its over-all budget was projected, on the basis of its preliminary figures, by one of the larger, integrated semimajor companies.

The 1950 domestic budget of one of the major companies breaks down like this:

Exploration activities down 8 per cent from 1949, wildcat and development drilling up 29 per cent, natural gasoline and cycling plants about the same, refining down 60 per cent, marketing up 65 per cent, with the total 1950 budget 9.6 per cent higher than was spent last year.

This company added:

"Our foreign capital program for 1950 is substantially reduced under 1949, and our total capital expenditures are expected to be well below 1949.

"The increases in the domestic program apply in the main to the production and marketing departments. Intensive search for oil and active development of our proven properties are the principal factors in the proposed increase for the production department.

"The marketing department program for 1950 is part of a 5-year plan to meet the expanding demand for products. During the war, and the period immediately following the war, many of that department's projects were deferred.

"The refining department expenditures planned for 1950 are considerably less than 1949, due to the completion of a major part of the postwar expansion and modernization program."

**Pipe lines get more.**—Another company which just completed a major refinery program and is now in the midst of a large pipe-line program reflects this in its budget, which shows an over-all increase of 8 per cent. However, the allocation for pipe lines is up several hundred per cent, that for refining is down 85 per cent, and there are compensatory reductions in funds for other activities.

An opposite trend is shown by another major company which is reducing its pipe-line expenditures 88 per cent but increasing its refinery expenditures 35 per cent. Its budget for production is up 8 per cent and for marketing up 55 per cent, with the total down about 4 per cent below 1949. This company recently completed a sizable pipe-line construction program, and stated:

"The allocation for domestic producing, which includes exploration and drilling, is not only higher than last year but still constitutes a major part of the budget. It reflects the belief on our part that our operations should be more evenly balanced; furthermore, that it will be necessary for the industry to continue a vigorous search for oil to meet the expected increase in demand over the years ahead."

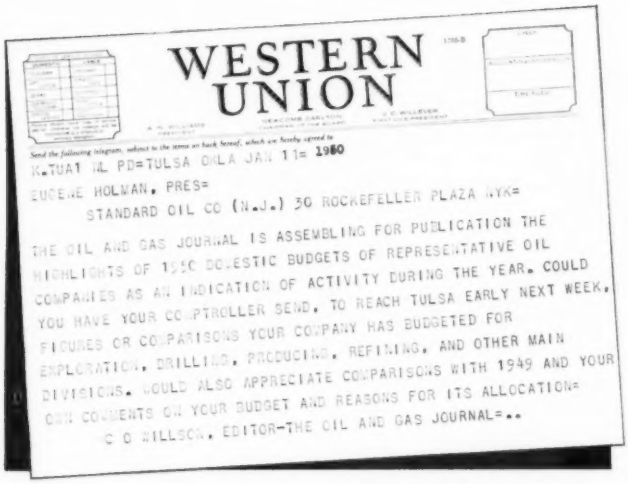
**Production emphasized.**—This emphasis on production is even more strikingly illustrated by the budget of another major which is up somewhat more than 8 per cent in total. Its allocation for domestic production is 30 per cent higher than 1949, while expenditures for refining and pipe-line departments are down between 40 and 50 per cent.

Here is what a medium-sized company wrote, after explaining that its final budget figures are not yet completed:

"In 1950 our company expects to make capital commitments for the last third of its $100,000,000 capital program announced for the period 1948-50, inclusive. The total investments contemplated this year are approximately the same as in each of the two previous years, with the emphasis on refining and production. While our exploration program has not yet been finally put together, we expect it to also continue at approximately the same level as the two previous years."

**West Coast view.**—From California, where currently there is a surplus of heavy crude oil, one prominent company reports:

"We anticipate that aggregate expenditures during 1950 will be approximately 28 per cent lower than in 1949. The principal reduction is reflected in drilling and development



WESTERN UNION

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

K.TUAT NL PD=TULSA OKLA JAN 11= 1950

EUGENE HOLMAN, PRES=
STANDARD OIL CO (N.J.) 30 ROCKEFELLER PLAZA NYK=

THE OIL AND GAS JOURNAL IS ASSEMBLING FOR PUBLICATION THE HIGHLIGHTS OF 1950 DOMESTIC BUDGETS OF REPRESENTATIVE OIL COMPANIES AS AN INDICATION OF ACTIVITY DURING THE YEAR. COULD YOU HAVE YOUR COMPTROLLER SEND, TO REACH TULSA EARLY NEXT WEEK, FIGURES OR COMPARISONS YOUR COMPANY HAS BUDGETED FOR EXPLORATION, DRILLING, PRODUCING, REFINING, AND OTHER MAIN DIVISIONS. WOULD ALSO APPRECIATE COMPARISONS WITH 1949 AND YOUR OWN COMMENTS ON YOUR BUDGET AND REASONS FOR ITS ALLOCATION=

C O WILLSON, EDITOR-THE OIL AND GAS JOURNAL=..

***Typical of the telegrams sent to 30 major companies to obtain information from which the accompanying article was prepared is the one shown here, sent to Eugene Holman, president of Standard Oil Co. (N. J.).***

on proved properties which in many cases are now being produced at curtailed rates due to ample supplies of crude oil.

"Exploratory activities are being continued at about the same level as in the past. The completion last year of a major program of modernization and expansion at our refineries will likewise result in substantially lower expenditures. On the other hand, additional funds have been allocated for additions and improvements to bulk distributing plants and service stations."

One very large factor in the industry stated that its tentative budget is being completely revised and present indications are that it will total less than 1949 expenditures.

But the president of another very large major wired: "Our full year 1950 budgets have not yet been approved but we expect total capital expenditures for consolidated companies to be about the same as last year, slightly under $140,000,000."

The heads of two large companies engaged chiefly in production stated that while they have not specifically budgeted their 1950 programs they expect their exploration and drilling activities to be on about the same levels as last year. One of these executives explained that his company's budget is purposely flexible to permit it to take advantage of new wildcatting or production opportunities whenever they arise and that the company will continue to be active in seeking such opportunities this year.

**Plans vary widely.**—Quite significant is the statement of one of the majors that while its refining budget will be lower by 70 per cent, its total expenditures will be 16 per cent greater. It plans increases of 8 per cent in exploration, 60 per cent in production and drilling, and more than 100 per cent in marketing.

"Exploration in 1950," this company remarked, "will be conducted at about the same pace as in 1949, but production and drilling operations will be accelerated. For the past 2 years we have engaged in a large construction program in manufacturing, aimed primarily at modernizing our refineries and enlarging our refining capacity. This program has been completed, and in 1950 projected expenditures will return to normal. Marketing expenditures are also to be accelerated in 1950 in the modernizing of old facilities and the construction of new service-station outlets."

An exception to the general trend is exhibited by one major company with operations in several active areas. Its 1950 budget for exploration is 12 per cent below 1949 expenditures, but all other items show substantial increases.

This company's expenditures for refining will be more than double what it spent for this department last year. Its allocation for production is up 30 per cent, for marketing up more than 90 per cent, for transportation up 10 per cent, and for other expenses up about 28 per cent.

"The refining budget increase over 1949," this company explained, "is primarily due to expansion of subsidiary plants. Marketing budgets have been increased to take care of expansion and modernization of plant facilities to meet anticipated demands of a growing market. Further development of properties to maintain crude-oil production and prove new areas accounts for the producing increase."

One of the smaller but very active companies among the 30 firms polled expects to spend about 4½ per cent less, over all, during this year than it spent in 1949. Here again the big decrease is in capital investments in refining and petrochemical properties, as this concern has just completed a large construction program.

This section of this company's budget shows a decrease of 66 per cent, but increases elsewhere almost offset this. Its exploration expenditures will be higher by 20 per cent, and its combined expenditures for pipe lines and for production will be more than 70 per cent higher.

# GULF COAST

## Texas Property Purchase

HOUSTON.—Horsting Oil Co. of Chicago and The Whitney Co. of Las Vegas, Nev., have purchased the oil and gas properties and undeveloped acreage of the estate of the late Tom Graham of Corpus Christi for $780,000.

Each company has purchased half interest in the late oil man's properties. Involved in the sale are 64 producing wells in Nueces, Bee, San Patricio, Jim Wells, Brooks, Duval, and Webb counties; a small amount of production in Mississippi; and undeveloped acreage in several Texas counties, including Kleberg, Matagorda, and Houston. Producing acreage totals about 3,971, and the undeveloped acreage about 8,379. Oil production involved is about 375 bbl. daily.

Horsting Oil Co. is headed by W. F. Horsting, Sr., Chicago. His son is executive vice president and J. E. Koch of Corpus Christi is vice president and secretary. The company began operations in South Texas a little more than a year ago. The Whitney Co. is a partnership of Victor Nemeroff and David E. Bright. This is believed to be the concern's first venture into the oil industry.

## McCarthy Asks RFC Loan

HOUSTON.—Glenn McCarthy, Houston independent, has asked Reconstruction Finance Corp. for a $70,000,000 loan for himself and three of his companies.

Neither McCarthy nor his public-relations staff will make any comment on the proposed loan. However, it is understood that the money would be used to develop McCarthy's oil properties and to refinance existing loans from insurance companies.

The application was filed on behalf of McCarthy Oil & Gas Corp., McCarthy Chemical Co., McCarthy Center, Inc., which controls the Shamrock Hotel and adjacent property, and McCarthy personally.

The three Texas fields where devel-

opment drilling would be done are probably New Ulm field, Austin County; Collins Lake field, Brazoria County; and Big Hill field, Jefferson County. The New Ulm and Collins Lake fields are considered two of the most promising in the Texas Gulf Coast area. In New Ulm, McCarthy owns 12,250 acres jointly with Gulf Oil Corp. He controls several thousand acres in Collins Lake field along with Sun Oil Co.

Toward the end of 1949 McCarthy brought in oil production in the New Ulm field, which formerly had produced only gas-condensate. The discovery produced 750 bbl. daily from two sands in the Wilcox at around 10,000 ft. Indications are that a large reservoir has been found. This, plus the fact that deep drilling is involved, would make development of the field an expensive proposition.

Collins Lake field is considered one of the best discoveries of 1949 in the Texas Gulf Coast area. McCarthy's initial well tested 320 bbl. daily from the Frio-Vicksburg at 9,100 ft.

## NATIONAL AFFAIRS

# Forecast for 1950

### Bureau of Mines predicts daily demand of 6,315,000 bbl. with 4.4 per cent gain in domestic demand, drop in exports

TOTAL demand for crude petroleum and petroleum products in 1950 is forecast at 6,315,000 bbl. daily by the U. S. Bureau of Mines. This represents an increase of 197,000 bbl. daily or 3.2 per cent over the average for 1949.

Domestic demand is expected to increase 4.4 per cent or 257,000 bbl. daily but a decrease of 18.2 per cent is projected for exports.

The Bureau forecasts an increase of 3.2 per cent in the total demand for motor fuel compared with a gain of 4.9 per cent in 1949. Total kerosine demand for 1950 is set at 312,000 bbl. daily, up 8.3 per cent. An increase of 10.5 per cent in distillate demand is projected.

Declines in railroad and vessel consumption of residual fuel will be partially offset by conversions from coal, but total heavy fuel demand will be about 1.4 per cent less than in 1949.

The increase in total demand will be covered by increases of 85,000 bbl. daily or 1.7 per cent in crude production, 31,000 bbl. daily or 7.3 per cent in light hydrocarbon production, and a gain of 64,000 bbl. daily in total imports. Stock reductions are forecast at 27,000 bbl. daily compared with 10,000 bbl. daily in 1949.

Crude runs at refineries are forecast at 5,452,000 bbl. daily, an increase of 122,000 bbl. daily or 2.3 per cent over the 1949 average.

**FORECAST—SUPPLY AND DEMAND FOR 1950, BUREAU OF MINES**
(Thousands of barrels daily)

| | First quarter | Second quarter | Third quarter | Fourth quarter | 1950 | 1949 |
|---|---|---|---|---|---|---|
| Domestic demand | 6,244 | 5,725 | 5,826 | 6,391 | 6,046 | 5,789 |
| Motor fuel | 2,255 | 2,769 | 2,804 | 2,598 | 2,608 | 2,495 |
| Kerosine | 417 | 203 | 212 | 397 | 307 | 280 |
| Distillate | 1,355 | 736 | 707 | 1,228 | 1,005 | 897 |
| Residual | 1,517 | 1,247 | 1,201 | 1,375 | 1,334 | 1,347 |
| Other | 700 | 770 | 902 | 793 | 792 | 770 |
| Exports | 267 | 297 | 272 | 239 | 269 | 329 |
| Crude | 78 | 99 | 76 | 54 | 77 | 89 |
| Products | 189 | 198 | 196 | 185 | 192 | 240 |
| Total demand | 6,511 | 6,022 | 6,098 | 6,630 | 6,315 | 6,118 |
| Motor fuel | 2,322 | 2,857 | 2,891 | 2,674 | 2,688 | 2,605 |
| Kerosine | 422 | 209 | 218 | 402 | 312 | 288 |
| Distillate | 1,389 | 758 | 728 | 1,250 | 1,030 | 932 |
| Residual | 1,545 | 1,275 | 1,228 | 1,402 | 1,362 | 1,381 |
| Other | 833 | 923 | 1,033 | 902 | 923 | 912 |
| Stock change | —155 | +99 | +141 | —195 | —27 | —10 |
| Crude | 0 | 0 | 0 | 0 | 0 | —12 |
| Other oils | —155 | +99 | +141 | —195 | —27 | +2 |
| Total new supply | 6,356 | 6,121 | 6,239 | 6,435 | 6,288 | 6,108 |
| Imports | 767 | 659 | 652 | 739 | 704 | 640 |
| Crude | 467 | 472 | 478 | 478 | 474 | 426 |
| Other oils | 300 | 187 | 174 | 261 | 230 | 214 |
| Production | 5,589 | 5,462 | 5,587 | 5,696 | 5,584 | 5,468 |
| Crude | 5,133 | 5,033 | 5,136 | 5,212 | 5,129 | 5,044 |
| Other oils | 456 | 429 | 451 | 484 | 455 | 424 |
| Runs to stills | 5,450 | 5,335 | 5,465 | 5,556 | 5,452 | 5,330 |

## Truman on Taxes

### Congress asked to put end to depletion allowances

WASHINGTON.—Declaring the depletion allowance the most "inequitable" loophole in the tax structure, President Truman this week called on Congress to do something about the "excessive" exemptions now enjoyed by oil and mining interests.

The President asked for the closing of loopholes and a "moderate" increase in tax rates on corporate income in excess of $50,000. He suggested the reduction of excise taxes but only to the extent that substitute revenue is provided through the elimination of means of tax avoidance. His suggestion for excise-tax repeal, however, did not mention the levies on oil, from which slightly more than $600,000 000 was secured last year.

Mr. Truman went to considerable length in his discussion of the depletion allowance He pointed out that the depletion allowance, unlike depreciation deductions, which terminate when the original investment in physical assets has been recovered, "goes on, year after year, even though the original investment in the property has already been recovered tax free, not once but many times over."

Originally introduced to stimulate essential production in the first world war, he told Congress, this special treatment has been extended during later years. At the present time, together with another preferential provision which permits oil-well investment costs to be immediately deducted from income regardless of source, they "are allowing individuals to build up vast fortunes, with little more than token contribution to tax revenues."

The President cited one example of an operator able, "because of these loopholes," to develop properties yielding nearly $5,000,000 in a single year without payment of any income tax.

"In addition to escaping the payment of tax on his large income from oil operations," he said, "he was also able through the use of his oil-tax exemptions to escape payment of tax on most of his income from other sources. For 5 years (1943-47) his income tax totaled less than $100,000, although his income from non-oil sources alone averaged almost $1,000,000 a year.

"This is a shocking example of how present tax loopholes permit a few to gain enormous wealth without paying their fair share of taxes.

"I am well aware that these tax privileges are sometimes defended on the ground that they encourage the production of strategic minerals. It is true that we wish to encourage such production. But the tax bounties distributed under present law bear only a haphazard relationship to our

real need for proper incentives to encourage the exploration, development, and conservation of our mineral resources."

While the President attacked the advantages enjoyed by domestic producers, he proposed a measure of relief for oil and other interests engaged in business abroad. He recommended postponement of the tax on corporate income earned abroad until it is brought home, extension and generalization of the present credit for taxes paid abroad, and liberalization of the foreign investment requirement for exemption of income earned abroad.

"These charges, together with the safeguards for our investors which we are in the process of negotiating with foreign governments, will provide real stimulation for the expansion of United States investment abroad," the President said.

The President, in his message, did not indicate whether he wanted the depletion allowance repealed, in its entirety or, as has been suggested in some treasury circles, reduced to a lower rate or provided only to the extent of recovering the investment.

## Oil's Reply to Truman

President Truman's attack on the depletion allowance drew immediate response from oil men throughout the industry.

The universal reaction was that any change in this tax provision would reduce exploration and wildcatting, and make the discovery and development of oil and gas pools more costly or even prohibitive.

In Washington to attend the meeting of the National Petroleum Council, Frank M. Porter, president of the Mid-Continent Oil and Gas Association, said:

"The President's statement is ill advised and wholly without foundation, and cannot be supported by factual evidence."

With the industry mobilizing forces to oppose any change, it appeared certain that there would be a bitter fight in Congress if the matter is pressed. Some predicted that the opposition would be so strong that final action would be postponed until the next Congress.

There was much encouragement in the news that Rep. Sam Rayburn of Texas, Speaker of the House, would oppose the President's plan.

Other representatives and senators from oil states also quickly announced their opposition. Among these were Sen. Tom Connally of Texas, a member of the Senate finance committee which handles tax bills; Sen. Robert Kerr of Oklahoma; the ranking Republican members of both the House and Senate tax committees; and many others of both political parties.

# WATCHING WASHINGTON

**Bertram F. Linz**

## Postponed Again

The fight over tidelands legislation may be deferred until next year as a result of the action of the Supreme Court in deferring argument on the Texas and Louisiana cases from February 6 to March 13.

While the House committee in charge of the legislation may report out a bill providing for administration of coastal oil resources by the states, there seems to be a general inclination in Congress to let the matter rest until the Supreme Court renders an opinion. Apparently this attitude is based on the theory that if the court holds the Government does not have paramount rights over the Gulf oil fields the position of those supporting the states' bill will be strengthened, while if it holds otherwise it will not have much effect on congressional sentiment.

If the court does not hear the cases until March it may well be May or June before its opinion is rendered, which would make it too late in the session for any legislation to be enacted this year.

So far, the delay in deciding what is to be done with the submerged oil lands and who is to do it has not seemed to have affected the oil supply, with the result that nobody at the Capitol feels it necessary to do anything in a hurry. In other words, both sides are playing a waiting game, each hoping that something will happen to weaken the other.

## Illegitimate Oil

Away back some 3 years ago when oil was short, everybody was saying a barrel of oil anywhere in the world was a barrel of oil in the United States—which may become literally true if imports keep on increasing.

However, a barrel of oil is no longer just a barrel of oil, in the United States or elsewhere. Instead, it is either a barrel of dollar oil or a barrel of sterling oil, according to a definition devised by the British Government which must be very puzzling in Venezuela, Kuwait, and certain other parts of the world.

Down in Venezuela, for instance, Gulf has some concessions from which it is selling one-fourth of its production to Shell. The one-fourth of the output taken by Shell is classified by the British Government as sterling oil, whose lineage entitles it to entry into the sterling area. The other three-fourths, although out of the same holes in the ground, is dollar oil—illegitimate, so to speak.

A similar puzzle exists in Kuwait, where an American company and a British company have joined in common effort and 1 barrel of the oil born of that mating may be dollar oil while the next is sterling. It must all be very confusing.

Then, too, there are some crass enough to claim there isn't a barrel of pure-blooded sterling oil anywhere—that in the production of all sterling oil, somewhere along the line, a piece of American equipment was used or a royalty was paid in gold, giving it what is called a dollar component in oil circles and a "bar sinister" among the aristocrats.

All of which is just a dialectic screen for Britain's effort to increase her oil markets so as to get more dollars to buy more equipment to produce more oil to sell those markets.

## Bigness Penalty

Analysis of President Truman's synthetic rubber report shows that it is more than slightly tinged with the administration's antimonopoly policy—to such extent, in fact, that the report may stumble over its own feet when it comes to disposing of the Government's plants.

It is no secret that the working experts who made the investigation were instructed to take every safeguard against the possibility of monopoly in the synthetic-rubber industry, if and when one is established. They fought unsuccessfully to have some of the more rigorous restrictions eliminated to make the proposed procedure more workable.

The Department of Justice, however, is understood to have succeeded in having all of the "safeguards" retained.

Throughout the report, emphasis is laid upon the necessity for preventing the synthetic rubber plants from falling into the hands of companies "dominant" in the rubber field.

To carry out the objective of expanding competition in the rubber industry, it is proposed that smaller interests be permitted to buy plants at lower prices, make smaller down payments, have longer time for payment and receive a lower rate of interest.

But the form of the legislation which Congress must now enact will show whether it shares the President's fears of big business.

# Deep-Water Drilling

## West Coast interests think new platform will permit work in 350 feet of water; title to huge offshore area awaited

Robert Harwick

LOS ANGELES.—Drilling for oil in 350 ft. of water is possible, and may begin sometime in the not-too-far-distant future, West Coast designers claim.

In fact, equipment is now being planned which is projected to accomplish this drilling. That there is belief in the equipment is shown by a recent claim filed with the United States Government by Hillman W. Hansen for 5,000 square miles of an ocean-bottom shelf beyond the 100-fathom limit of the Continental Shelf.

The plans for this deep-water drilling describe a submersible, recoverable barge supporting a drilling platform that will operate in the open sea in up to 350 ft. of water.

**Design.**—The structure, as designed, is simple but amazing. Masts 425 ft. high stand at the corners of a triangular barge, 90 ft. on a side. The barge is compartmented for buoyancy during transportation and for controlled flooding during submerging operations.

A triangular drilling platform, also 90 ft. on each side, is suspended from the tops of the masts. This platform could be raised or lowered within some 20 ft. of the top or bottom of the masts.

Once the barge was in position, the compartments would be flooded, and as the barge began to sink the drilling platform would be lowered to the surface of the water. The buoyant platform would act as a stabilizing force.

Hinged stabilizing arms containing floodable compartments extend from each corner of the barge. These would be folded out during descent or ascent of the barge but folded in once the barge was in place on the bottom.

Levelling of the barge on the ocean floor would be accomplished by hydraulic jacks at the base of each mast. When in place and level, the drilling platform would be raised to a point above wave action. For the area in question this would be about 40 ft.

Present design calls for a rig capable of reaching 13,000 ft. with 4½-in. pipe and with a double crown block to support 800,000 lb.

The drilling platform, as designed, consists of three levels, with a cage for the blowout preventers hanging below. The first, or drilling level, holds rig, pumps, tanks, and pipe racks. The second level has quarters for the crew, storage space, and personnel and operating facilities. The top level is really the reinforced roof of the crew's quarters and is planned as storage area.

Upon completion of drilling in one location, according to the unit's design, the platform would be lowered to the surface and the barge raised by expelling the water from the flooded compartments. In general, the operation would be the reverse of the submerging operation. On reaching the surface the barge would be ready to be towed to the next location.

**Cost.**—Cost of such a drilling structure would be considerably higher than the present cost of fixed platforms in Gulf Coast offshore waters. Because of the recoverable feature, however, designers expect the new design to effect a 60 per cent saving in total drilling costs.

**Development plans.** — Plans for construction of the first such platform now are under consideration. Several interests are collaborating with Emsco Derrick & Equipment Co. on the project. Actual construction awaits a proclamation acknowledging Hansen's offshore claim.

**Offshore claim.** — Hillman Hansen, formerly vice president of Almeria Oil Co. and now associated with Ruscardon Engineers, filed his claim to offshore lands in 1949. Receipt of the claim has been acknowledged by the Government.

At the time it was filed, the claim seemed little more than a huge joke, and Hansen's land was dubbed "Rancho Porpoise."

But Hansen was not fooling. There were several valid considerations which prompted the action. These indicated the presence of drillable lands with a good chance of production which were believed to be beyond the present tidelands controversy.

The land claimed is a shelf beyond the Continental Shelf. Roughly it comprised the submerged area surrounding the Santa Barbara Channel Islands. These islands lie in an east-west line from 25 to 40 miles off the California coast in the vicinity of Santa Barbara. Depths fall off rapidly in this area to as much as 6,000 ft. There is also considerable area less than 400 ft. deep.

**Sidelights.** — Hansen now is associated with J. R. Pemberton, consulting geologist and president of the Pacific Section of the American Association of Petroleum Geologists. Pemberton is the outstanding authority on the geology of this channel-island area and has drilled several wildcats on Santa Rosa, one of the islands.

Signal Oil & Gas Co., Macco Corp., Honolulu Oil Corp., and Standard Oil Co. of California all have drilled tests on Santa Rosa.

It is now reported that Pemberton did locate thin oil sands in his test. These are believed to be a pinchout of sands extending offshore.

*NEW RESEARCH CENTER.—With W. L. Stewart, executive vice president, at the power-shovel controls and Reese Taylor, president, looking on, Union Oil Co. last week broke ground at Brea, Calif., for the company's $5,000,000 research center, model of which is shown above. Ceremonies, attended by nearly 1,000 industry and civic representatives, also marked the beginning of Union's sixtieth year. The center will be built on a 100-acre tract at the corner of Imperial Highway and Valencia Ave. in Brea, about 20 miles south of Los Angeles. First portion of the program calls for construction of 12 buildings on 22½ acres, with completion scheduled for July 1951. Eventually the center will replace research facilities at the Wilmington refinery.*

# No Canadian Exports

## Hewetson says Imperial plans no sale of crude or products here, thinks Alberta could produce now 120,000 bbl. daily

**Henry D. Ralph**

IMPERIAL OIL, LTD., has no intention of selling any Canadian crude oil or petroleum products in the United States, H. H. Hewetson, chairman of the board, stated flatly last week in an interview in Tulsa.

The crude-oil pipe line now under construction to Superior, Wis., by the subsidiary Interprovincial Pipe Line Co. is designed solely to supply Alberta crude to refineries of eastern Canada, he declared. In order to insure financing of the line, Imperial guaranteed to take the entire throughput at its Sarnia refinery, though it will sell some of it to other eastern Canadian refineries if they desire to purchase.

Crude will come into the United States under customs bond and will be exported via Great Lakes tanker, and while the lakes are closed to navigation during the winter it will be placed in bonded storage at Superior.

However, Hewetson pointed out, the Interprovincial line will be operated as a common carrier, and while Imperial will sell no oil outside of Canada it would be possible for a United States concern to purchase crude in Alberta and tender it to Interprovincial for shipment to Superior or some other point in the United States. No deals of this sort are pending, Hewetson said.

The pipe line, scheduled to go into operation in the spring of 1951, will have an input capacity at Edmonton of 90,000 bbl. per day, but some of the crude will be dropped off for refineries along the route in Canada and about 50,000 bbl. per day will reach Superior during the navigation season. When the lakes are closed to navigation the line will deliver only about 10,000 bbl. per day, which will go into 1,500,000 bbl. of storage at Superior. This will equal an average delivery to Sarnia of about 35,000 bbl. per day the year around.

With additional pumps the line's capacity could be increased to take close to 150,000 bbl. per day out of Edmonton and deliver about 90,000 bbl. per day to Superior, but Hewetson said his company anticipates no economic market for such quantities of crude in the near future.

Forecasts of Canadian supply and demand recently completed by Imperial suggest that Alberta oil will not go nearly as far in solving the Dominion's foreign-trade problems as had been anticipated in some quarters.

During 1952, it is forecast, Canadian demand will be 386,800 bbl. of petroleum products daily, and imports of crude and products will average 272,800 bbl. daily. This will mean that Canadian crude used for domestic demand will be only about 114,000 bbl. daily.

During 1949 Canadian demand was 320,500 bbl. daily and imports were 264,800 bbl., with about 56,000 bbl. daily supplied by Canadian crude. Runs to stills by Canadian refineries were 257,700 bbl. daily in 1949 and are forecast at 303,200 bbl. daily in 1952.

This indicates that Canada will be importing more oil than at present even though use of its own crude doubles during the next 2 years.

Hewetson said that Alberta production probably could be pushed up to about 120,000 bbl. per day at present if there were a market for it, but that it is not economic to ship more than about 35,000 bbl. per day to eastern Canada at this time.

This suggests that much Alberta crude will be left to seek other markets after the Interprovincial line goes into operation, but Hewetson said his company will not attempt to export any of it.

Consideration is being given to a crude line from Alberta over the Canadian Rockies to Imperial's refinery at Vancouver, now supplied by California crude, Hewetson said, but at present such a line does not seem economically feasible.

Hewetson was in Tulsa to address the annual dinner of the local chapter of Nomads, a social organization of equipment salesmen.

# Imports Cut

## Texas Co. reduces imports of oil nearly 18 per cent

EFFECTIVE February 1 The Texas Co. will reduce its imports of foreign oil by 14,275 bbl. daily, or 17.83 per cent.

Announcement of the cut brought immediate and enthusiastic response from officials of the Texas Railroad Commission and the Independent Petroleum Association of America.

In Washington, J. Ed. Warren, president of the I.P.A.A., hailed announcement of the import reduction as "most welcome news" and said "if the other large importing companies take similar action an important beginning will have been made toward solution of the most critical problem faced by the domestic oil industry."

"This recognition of the damage to the economy of the United States involved in a program of excessive imports of oil is timely and is a start toward implementing the National Oil Policy which the importing companies as members of the National Petroleum Council approved," Warren said.

The imports cut, composed of 10,175 bbl. daily of crude oil and 4,100 bbl. daily of residual oils, was also acclaimed by Ernest O. Thompson of the Railroad Commission. In his statement Thompson said, "This is most gratifying, and I wish to compliment The Texas Co. officials on this evidence of business statesmanship now so necessary for the continued development and prosperity of our state and nation.

"Texas had to reduce her oil producing days to 15 in February for the 1,600 oil fields of the state generally, and 13 days for the prolific East Texas field. This reduced oil production due to lack of market demand has adversely affected the economy of Texas and if allowed to continue will adversely affect the national defense."

Thompson added that "The Texas Co. revises its estimate downward by 17.83 per cent. If all other importers followed by this percentage, a reduction of 150,000 bbl. per day would be effected. This would help greatly to make markets for about one more day a month for domestic oil."

# O.I.I.C. Budget

## Story of oil to be filmed; advertising campaign set

NEW ORLEANS.—Detailed plans for the expenditure during 1950 of $1,600,000 to inform the public better about the oil industry were laid here last week by the Oil Industry Information Committee.

A highlight of the 1950 program will be the production of a 16-mm. black-and-white motion picture. The script for the movie was approved at the meeting and the operating budget for it was raised from $60,000 to $85,000. The script calls for telling the story of oil, with emphasis on its benefits to all citizens.

The 1950 advertising campaign was described by the committee as representing " a complete change of pace from that carried out in 1949." It will feature panel-type "talking pictures"

*IN SESSION.—The field-activities committee of the O.I.I.C. is shown here in the Roosevelt Hotel as members discussed plans for work during the current year. From left to right are Jack Clarke, Lion Oil Co.; Bernard F. Shea, Esso Standard Oil Co.; Stanton K. Smith, Smith Oil & Refining Co.; Guy Tate, Magnolia Petroleum Co., chairman of the committee; Emerson Smith, Continental Oil Co.; Richard Rollins, Atlantic Refining Co.; and Harry A. Trower, Phillips Petroleum Co.*

which will emphasize the progressiveness and competitiveness of the oil industry.

Editorial plans for this year call for a steady flow of informational material, a presentation for oil-company management, and a program for schools. The committee also set the third week of October as the date for Oil Progress Week in 1951. This is the same time as it will be held during the current year. Oil men use this 7-day period to report directly to their communities on the progress and achievements of the industry as a whole.

The New Orleans meeting marked the first time that district chairmen have participated as full-fledged members of O.I.I.C. An attempt is being made to decentralize the activities of the group. Administrative changes have been under way during the past several months as a result of the Chicago A.P.I. meeting in November.

## Aetna Merger Effective

The merger of Aetna Oil Co. into Ashland Oil & Refining Co. has been approved by Ashland stockholders and has become effective.

Ashland incorporation articles were amended to authorize 150,000 shares of $5 cumulative preferred stock, of which 21,350 shares were issued in the Aetna merger and 33,097 will be used in the acquisition of Freedom-Valvoline Oil Co. Several stockholders of these companies and the company itself have announced plans to sell shares publicly. In addition the company is to sell $15,000,000 3 per cent sinking fund debentures.

# SOUTHWEST

# Cutback Reactions

## Newspapers, independents add fuel to imports fire after third consecutive reduction in Texas oil allowables

**Leigh S. McCaslin, Jr.**

HOUSTON.—The third consecutive slash in the Texas allowable, which dropped February production 36,226 bbl. daily below that of January, last week resulted in immediate reaction from all quarters of the state.

Within a few days of the Railroad Commission's action:

The Texas Co. informed the Railroad Commission that it would cut its foreign-oil imports by 14,275 bbl. daily, effective February 1. Following this announcement, Shell Oil Co. told the press in New York that its total 1950 imports would be about 25 per cent less than in 1949.

Full-page advertisements headlined "Texas Production or Foreign Imports?" and containing a quotation from Railroad Commissioner Olin G. Culberson appeared in state papers.

Maston Nixon, Corpus Christi independent, bitterly criticized high imports and skyrocketing Scurry County production in a letter to William J. Murray, chairman of the Railroad Commission.

Guy I. Warren, another Corpus independent and president of the Texas Independent Producers and Royalty Owners Association, told his association the allowable cut "underscores the fact that no solution to the problem of excessive imports is in sight."

Newspaper editorials throughout the state called the public's attention to problems existing in the oil industry. The Houston Post in a lead editorial entitled "Crisis in Oil" said that allowable cuts mean "unemployment to many Texans, and greatly reduced earnings to producers and landowners."

**Based on hearing.**—Focal point of developments was the statewide hearing held in Houston. After the longest and best-attended hearing in several years, the commission announced 15 producing days for most of the state and 13 for East Texas field. Effect of this order is to reduce the current allowable by 36,226 bbl. daily, giving the state an average allowable of 2,052,174 bbl. for February. This allowable compares with a Bureau of Mines demand forecast of 2,170,000 bbl. and purchasers' nominations of 2,284,200 bbl.

A soft crude-oil market was indicated during the hearing when the commission found itself unable to find purchasers for 1,400 bbl. of West Central Texas crude.

The crude is a part of the 5,400 bbl. daily purchased by Premier Oil Refining Co. which the company announced several weeks ago it could not continue to buy. The Texas Co., Humble Oil & Refining Co., Gulf Oil Corp., and Magnolia Petroleum Co. each offered to take 1,000 bbl. of the oil, but no purchaser could be found for the remainder.

The area from which the distress oil is produced was described as "stripper" by French M. Robertson, president of the West Central Texas Oil and Gas Association, who warned that a cutback would mean the wells "will have to be plugged and will never produce again."

**Scurry cut asked.**—Texas' hottest area, Scurry County, entered the floor discussion with a request from Raymond Meyers, Magnolia representative, that the per-well allowable in the area be reduced from 220 to 140 bbl. per day.

Meyers told the commission the major problem of surplus production is in Scurry County and said something should be done about it.

Similar expressions were voiced by H. P. Nichols, of the East Texas Oil Association, and Harold G. Neely, Dallas independent.

Commissioners Murray and Thompson both explained that allowables in Scurry are based on the MER, as are those in the rest of the state. Thompson added that the 220-bbl. figure was the lowest figure given on Snyder field when MER's were presented to the commission.

**Texaco probe.**—Under questioning by Commissioner Thompson, John Edwards, Texas Co. official, told the commission his company has "comfortable" crude stocks.

Replying to other questions, Edwards said Texaco shut down its Houston, Dallas, and San Antonio refineries because they were obsolete, and that the recently opened Eagle Point, N. J., refinery was designed to run either foreign or domestic crude.

## Delhi Sells Holdings

DALLAS.—Sale of Delhi Oil Corp.'s natural-gas holdings in the Barker Creek Dome area of the San Juan basin in Northwest New Mexico to El Paso Natural Gas Co. was announced here Monday by Delhi's president, C. W. Murchison, in a letter to stockholders.

Leases and leasehold interests of 13,680 acres were involved in the transaction, with Delhi reserving all oil rights.

Initial consideration involved is $3,000,000, plus an overriding royalty of from 5 to 7 cents per 1,000 cu. ft. of treated gas. Of the amount, $250,000 is to be paid by January 27; the remainder will be paid within 35 days after El Paso receives a certificate from the Federal Power Commission for the construction of the so-called San Juan pipe line.

The contract also provides a maximum and minimum amount of gas El Paso may take after completion of the pipe-line outlet.

Delhi will build a natural-gasoline plant and El Paso will drill additional wells and a gathering system.

## Home Town Honors Boyd

TEAGUE, Tex. — Teague's citizens and oil-industry representatives from all over Texas gathered here last week to honor William R. Boyd, Jr., retired president of the American Petroleum Institute.

Boyd, who returned to his home town to live after leaving the A.P.I., was guest of honor during the day-long festivities. A banquet at which Sen. Tom Connally was principal speaker concluded the program, which included a parade, spudding of a well on the Boyd farm, a motion picture, and a reception.

The oil industry's tribute to Boyd was presented by W. Alton Jones, president of Cities Service Oil Co. and chairman of the board of directors. Speakers representing the petroleum industry included Hines H. Baker, president of Humble Oil & Refining Co.; D. A. Hulcy, president of Lone Star Gas Co.; and Olin Culberson, member of the Texas Railroad Commission.

## West Texas Lease Sale

One-half interest in 37,000 acres of West Texas leases have been purchased from George Strake, Houston independent, by Humble Oil & Refining Co. Exploratory work will be done in the next 6 months and any possible drilling will be done afterward.

The deal involves 11,000 acres in the South Winters block in Runnels County, 10,000 acres in the East Bronte block in Coke and Runnels counties, and 16,000 acres in the Schuch ranch block of Tom Green and Coke counties.

# MID-CONTINENT

# Price Power Upheld

### Oklahoma Supreme Court says Corporation Commission can fix minimum price for natural gas without specific law

OKLAHOMA CITY. — The Oklahoma Corporation Commission has the power to fix a minimum field price for natural gas produced within the state, the Supreme Court of Oklahoma decided in a five-to-four decision January 17.

No statute expressly grants such power, but the court found that it is inherent in the commission's conservation powers and its authority to prevent waste.

This is the first time that a high court in any state has upheld the fixing of a minimum field price for natural gas. Last year a trial court in Kansas upheld an order of the Kansas Corporation Commission fixing a minimum price for gas in Hugoton field, but this decision is being appealed.

The Oklahoma case probably will be appealed to the Supreme Court of the United States. Meanwhile it is attracting attention in all gas-producing states, particularly because the court held that price fixing is a necessary implement of conservation even though not specifically stated by the legislature.

The price fixed by the Oklahoma commission applies to all gas produced in Guymon-Hugoton field, Texas County. It fixed a minimum price of 7 cents per 1,000 cu. ft. at a pressure of 14.65 psi.

The case grew out of a dispute between Peerless Oil & Gas Co., a producer, and Cities Service Gas Co., which both produces and purchases gas and owns a pipe line transporting gas in interstate commerce. Complaining that Cities Service was draining its property, Peerless asked the commission to order Cities Service to make a connection with its lease and to take its gas ratably, and to fix the price to be paid.

The commission's order, issued 2 years ago, did these things and also set a minimum price for all gas produced in that field. Prior to the order the field price averaged about 4 cents per 1,000 cu. ft.

Cities Service agreed to the ratable take order but appealed the price order, contending that if any price is to be set it should be the average price currently being paid in the field.

The Oklahoma conservation statute gives the commission the power to fix the field price of natural gas when there is a dispute between producer and purchaser. This has been done only three times, in Cushing field in 1920, and twice more recently in connection with regulations for use of gas in making carbon black. None of these orders was tested in the courts.

In this Cities Service case the majority of the Oklahoma Supreme Court said that the fixing of a field-wide minimum price is a necessary part of the commission's powers to prevent waste, enforce ratable take, protect coequal rights, protect the public interest, and prevent discrimination.

**Findings.**—In its decision the majority said:

"When the price of gas is substantially lower than its intrinsic value or lower than the market price of products of similar usage, a wasteful use of the gas is apt to occur.

"The grant of power to the Corporation Commission to regulate the taking of natural gas from any source of supply, so as to protect the interest of all those having a right to produce therefrom, by necessary implication includes the power to fix a minimum price on the gas as a condition of the taking, when found reasonably necessary to the accomplishment of that purpose.

"Likewise the grant of power to regulate, with directions that such power be exercised so as to reduce waste and protect the rights of the public, necessarily implies a power to fix prices as a condition of the taking of gas when otherwise, and because of prevailing prices, the public interest might suffer.

"The price-fixing feature of the commission's order is but a means of securing the purpose for which the act was passed, or is the instrumentality employed by the commission to carry out the legislative will, and it is limited in its use to the effecting of the expressed purpose. The validity of the order rests in its reasonableness and relevancy to the policy the legislature was free to adopt."

Testimony in the case was to the effect that the commercial heat value of the gas made it worth more than 10 cents per 1,000 cu. ft. but that it was selling for 3.6 to 5 cents per 1,000, and the court declared:

"The testimony abundantly supports a conclusion that the conditions under which gas is being taken from the field is injurious to the interest of the public at large, and inimical to the interest of the public and others, and is resulting in eco-

nomic waste and conducive to physical waste.

"The testimony demonstrates that the price fixed as a condition of the further taking of gas from the field is reasonable and not beyond the requirements of the situation sought to be corrected, and will not result in discrimination."

The dissenting opinion stated that where there is a dispute over price the commission has no power to set a price higher than the prevailing average field price, and that if the legislature had intended full price-fixing powers the statute would have so stated.

## Elk City Decision

### Whole formation a common supply source, ruling holds

OKLAHOMA CITY. — Economy in drilling and production costs was one of the principal reasons cited by the Oklahoma Corporation Commission in ordering 40-acre spacing of wells in Elk City field, Beckham and Washita counties, Oklahoma.

The order is noteworthy because of the unusual geological formation in the field. The Hoxbar, a granite wash conglomerate formation, lies between the 8,800-ft. and 10,500-ft. levels, with oil, gas, and condensate produced from four different levels.

Shell Oil Co., which discovered the field in 1947 with its 1 J. G. Walters, applied for the 40-acre spacing on the ground that the entire formation constitutes a common supply.

The application was contested by royalty owners, who sought a 10-acre spacing. They contended that the field had four distinct producing zones and that each zone should have a different 40-acre spacing. They attempted to show that wells could be drilled and produced economically in each zone separately.

After extensive hearings the commission agreed with Shell engineers that the entire Hoxbar formation is a common source of supply and that the supposed zones are interconnected lenticular sections separated by porous formations which permit the passage of oil and gas.

In its order the commission said that "taking into consideration the cost of drilling, taxes, royalties, completion costs, lifting costs, the probable recovery per acre, and all other information, it appears that a drilling pattern of one well to each 40-acre tract of land probably will result in a profit to the operators, but closer spacing would be uneconomical."

The commission also found that 40-acre spacing will drain adequately the entire common source and will prevent waste and protect the rights of all parties concerned.

A gas-oil ratio of 5,000 cu. ft. of gas per barrel of oil produced was set by the order, effective June 1.

# TECHNOLOGY

## Rocket Engine

### Transparent sides used to permit combustion studies

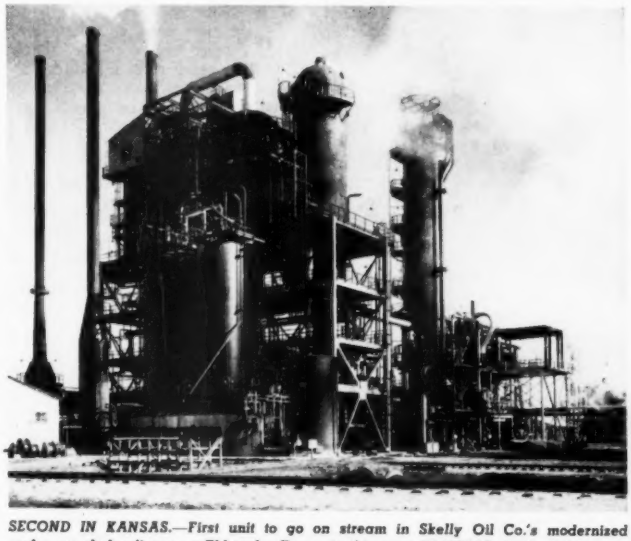
NEW YORK.—Visual studies of rocket combustion are now made possible through use of a specially-devised transparent-sided rocket engine.

This technique was discussed here last week before the New York section, American Rocket Society, by Donald R. Bellman, aeronautical research scientist with the National Advisory Committee for Aeronautics, Flight Propulsion Research Laboratory, Cleveland.

An important factor in the performance of a liquid-propellant rocket engine is the propellant injector which must be designed to produce the best possible combustion in the least possible volume, Bellman stated, A transparent-sided rocket engine employing clear methacrylate plastic was used to compare several types of injectors and to study combustion vibration phenomena such as "chugging." For the tests, gasoline was selected as the fuel because of the bright flame it produces. Alcohol is normally used as the propellant.

The transparent plastic selected does not become luminous and obscure the combustion pattern. Erosion of the walls by high-temperature combustion gases limits the duration of runs, but high-speed motion pictures made at rates of 3,000 to 40,000 frames per second provide enough pictorial record in only a few seconds running time to make the study feasible. Special methods for controlling the runs, for pumping the propellants, and for measuring the propellant flow rates have been developed. A single-stroke piston-type pump is used for metering the liquid oxygen into the combustion chamber.

Because data on results of the studies are of classified nature, Bellman restricted his discussion largely to the equipment and technique of the tests. A 15-minute motion picture showing some of the results obtained with the apparatus was presented. Spokesman for the host chapter at the meeting was a director of the society, Dr. W. E. Kuhn, manager of technical research for The Texas Co.



*SECOND IN KANSAS.—First unit to go on stream in Skelly Oil Co.'s modernized and expanded refinery at Eldorado, Kans., is this new 15,400-bbl. daily fluid cracking plant, second of its kind to be erected in Kansas and the latest high-octane gasoline producer to begin operating in the Mid-Continent area. Completion schedule on a new 35,000-bbl. per day crude-oil distillation unit now being installed in the refinery is set for the first quarter of this year. Throughput rating on this new crude unit raises the refinery's current capacity by 40 per cent. In addition to new processing capacity, existing facilities are being enlarged and modernized in line with the refinery's new input rating. Engineering, design, and construction of the project is by M. W. Kellogg Co.*

*Degassing station of International Petroleum Co., Ltd., at Khatiyah. The multistage unit shown here receives crude oil from each of the nine producing wells in Dukhan field. Crude, which already has been passed through a well-head separator, enters the degassing station at a pressure of about 350 psi, and leaves the last unit at a pressure of 10 psi. Crude then is moved to flow tanks from which it enters the pipe line to Umm Said.*

# Oil From Qatar

## Movement of first tanker load of crude from concession of I.P.C. marks end of long exploration, development period

AFTER 15 years of negotiation, exploration, and development, the Qatar concession of Iraq Petroleum Co., Ltd., has gone on commercial production.

On December 31, the President Meny sailed from Umm Said with the first tanker load of crude oil from the company's Dukhan field.

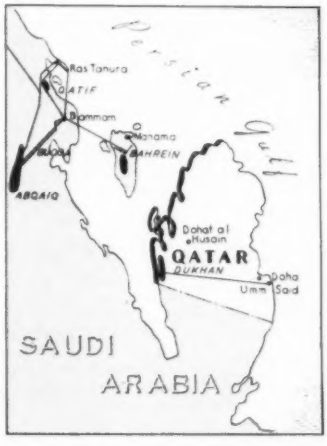
The departure of the vessel marked the end of a long nonproductive period during which the desert area was explored, wells were drilled, a 73-mile pipe line was constructed, and a loading terminal was built at Umm Said. Nine wells now are producing in I.P.C.'s Dukhan field.

**History.**—The Qatar concession was granted Anglo-Persian Oil Co., Ltd., for Iraq Petroleum Co., Ltd., in 1935 for a period of 75 years. Petroleum Development (Qatar), Ltd., was organized in 1936 to explore and develop the area.

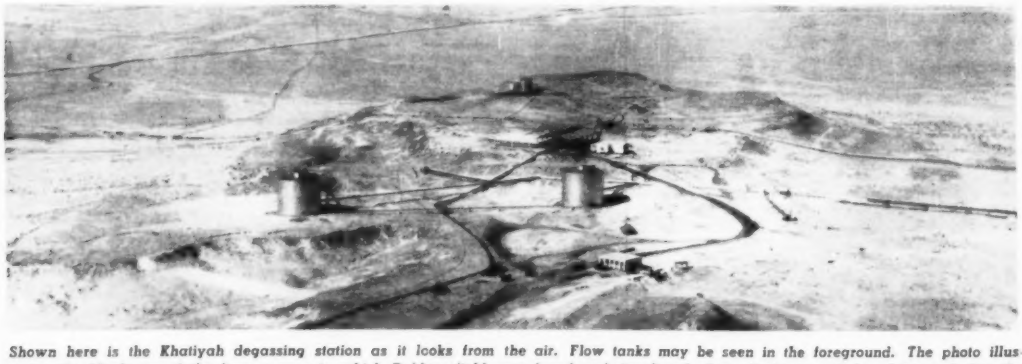
The first well was spudded in October 1939 and was completed in January 1940 with an initial production of 5,000 bbl. per day at 367-psi. flowing pressure. A second well was drilled and was completed in March 1941, for 5,000 bbl. per day at 342 psi. The third well was completed in water, and any further drilling was halted by the war.

Operations were resumed in 1947, and nine productive wells have now been drilled in Dukhan field.

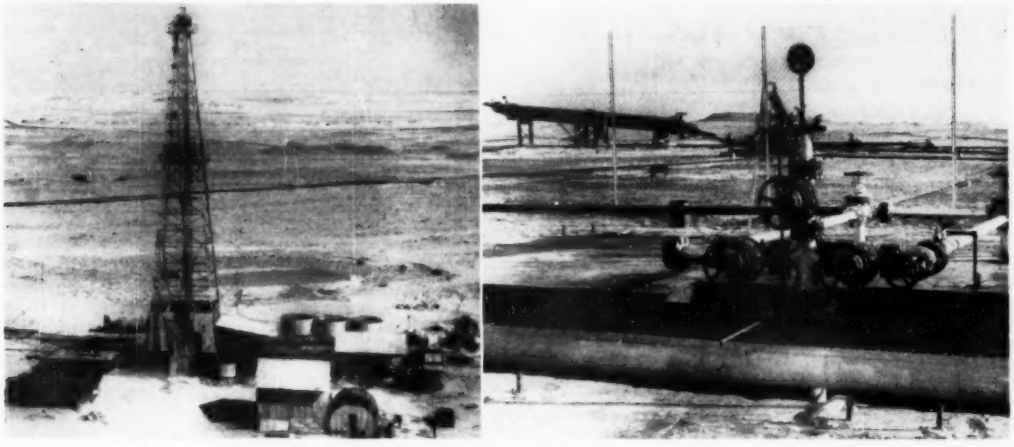
**Geology and geography.**—Qatar Peninsula juts northward from the Arabian Peninsula into the south-




*Map of the Persian Gulf area showing location of Qatar. The producing field, Dukhan, at left, is connected by pipe line to the loading terminal at Port Umm Said*



*Shown here is the Khatiyah degassing station as it looks from the air. Flow tanks may be seen in the foreground. The photo illustrates the bleakness of the barren area in which Dukhan field was found and developed. Just off the top of the photograph lies the Persian Gulf.*



*Left: Well No. 8 in Qatar's Dukhan field during drilling operations. Pit at right of derrick contains salt water, used in drilling because of a lack of a fresh-water supply. Right: Typical well-head installation. Note horizontal separator in left background.*

**FORMATIONS FOUND IN QATAR**

| Age, local name, development— | Thickness in feet |
|---|---|
| Eocene—Bahrein formation: | |
| Limestone with shales | 1,000 |
| Maestrichtian—Tayarat limestone: | |
| Limestone | 600 |
| Lower Senonian—Khatiyah form.: | |
| Limestones and shales | 800 |
| Cenomanian—Mauddud limestone: | |
| Limestone | 200 |
| L. Cretaceous—Rutbah sandstone: | |
| Sands and shales | 500 |
| Cretaceo-Jurassic—Musandam form.: | |
| Limestone with subordinate shales | 2,000 |
| Jurassic—Zekrit formation: | |
| Anhydrite | 406 |
| No. 1 limestone | 35 |
| Anhydrite | 30 |
| No. 2 limestone | 20 |
| Anhydrite | 50 |
| No. 3 limestone | 84 |
| Anhydrite | 60 |
| No. 4 limestone | 133+ |

western portion of the Persian Gulf. Its northern tip is eastward from Bahrein Island. It is an arid land, flat, low, sandy, and nearly devoid of vegetation.

Structurally the peninsula is a broad low anticlinorium, the productive Dukhan structure being a well-defined anticline near the western shore and near the peninsula's base. Surface indications show that the anticline is about 50 miles long and nearly 5 miles wide, with about 300 ft. of closure.

Surface formations are Eocene limestone, often covered by wind-blown sand. The pay is the multiple-zoned, limestone - anhydrite Zekrit formation, similar to the Arab zones of Saudi Arabia. The Zekrit lies about 5,100 ft. below the surface at the crest of the anticline. Thickening of formations overlying the Zekrit formation reduces its areal extent from that indicated at the surface. An accompanying table indicates the lithologic sequence found in Dukhan field.

**Development.**—The first well drilled on the structure was at its north end. It was completed in the Zekrit formation in the No. 3 limestone, as was the second well which was drilled 10 miles to the south. This second well found gas in the No. 4 limestone but was plugged back. The third well, $2\frac{1}{2}$ miles east of the first, found water in both the No. 3 and No. 4 limestones.

Because of an acute shortage of fresh water, salt water was used for circulation. In the Eocene formations drilling was carried on without returns. After surface pipe was set through this porous zone, clay salt-water suspensions were used for mud. Starch, tannates, and soda ash have been employed as treating agents.

The casing program includes 4,000 ft. of intermediate string set in the Musandam formation and an oil string set in the anhydrite immediately above the No. 3 limestone.

**Gathering system.**—Crude from each well flows through a well-head separator to a central multistage separator composed of four horizontal units. From this unit it goes to storage and then through 20 miles of $12\frac{3}{4}$-in. and 53 miles of 14-in. pipe line to the Umm Said loading terminal on the east coast of Qatar Peninsula. Oil is loaded through two double 16-in. sea lines, each 4,200 ft. long.

Houses and hospitals, power and plumbing, and a port and an airfield have had to be constructed before any crude shipments could leave Qatar. Food and water have been imported. More than 95,000 tons of equipment have been imported. Locally employed personnel now number 3,400.

*Desert City of Dukhan, including both the residential and industrial areas, which serves as headquarters for the Qatar operations.*

# World Production

## November output rate shows 225,000-bbl. daily increase from October, only 22,000 bbl. under high 1948 level

**Dahl M. Duff**

WORLD production of crude oil in November was at a rate nearly equal to the record high output level of late 1948.

A 177,000-bbl. daily increase in production in the United States was principally responsible for the gain from October to November. Coupled with this were increases in several Middle East countries, notably Iran, and a further slight gain in Venezuela.

World production in November is placed at about 9,748,000 bbl. daily, 225,000 bbl. daily above the previous month and only about 22,000 bbl. daily under the total of 9,770,000 bbl. daily in November 1948.

United States' production in November, though sharply up from October, was still about 470,000 bbl. daily below the record level of a year earlier. Had the United States in November produced at its late 1948 rate, total world production would have been well above 10,000,000 bbl. daily.

Excluding the United States and Russian-controlled areas, the November foreign total was 3,696,300 bbl. daily. This more-accurate index of the trend of foreign production has been rising almost steadily since the end of the war, and the November daily average represents an increase of about 50,000 bbl. daily, or 1.4 per cent, over October. It is about 327,000 bbl. daily over the foreign-less-Russia total for November 1948.

Most of the increases in the total foreign-less-Russia from October to November was due to Iran, Kuwait, and Iraq. Venezuelan production continued at a record level, showing a small gain of 7,100 bbl. daily over the 1,431,100 bbl. daily average for October.

Under the pressure of winter demand for fuel oils, Venezuelan production has continued more recently at an all-time high rate. The estimate of the Ministerio de Fomento for December was for a daily average of 1,488,900 bbl. daily. In the week ended January 2, the daily average was 1,456,400 bbl. daily, and the week ended January 9, 1,464,000 bbl. daily.

Despite the present record production in Venezuela, both government and industry leaders in that country are known to be concerned over the future of the markets for Venezuelan oil. The most threatening developments are the recent action of the British Government in restricting dollar-oil importations into the sterling area and the possibility of a higher tax on foreign oil shipped into the United States. A high Venezuelan Government official is reported to be now in London discussing the situation presumably with British Government and company officials.

Crude-production statistics for November for several other countries in the Western Hemisphere showed small declines. The unsettled political situation in Colombia at the time of the late-November election apparently was the cause of a drop of about 1,000 bbl. daily in production in November. A 2-day strike took place in De Mares, it was reported.

For the entire year 1949, Colombian production totaled 29,695,238 bbl. for a daily average of about 81,500 bbl. December output was approximately 82,400 bbl. daily. Below are production figures for Colombia by concession (in barrels total):

| | Nov. | Dec. |
|---|---|---|
| De Mares | 1,006,320 | 1,072,516 |
| Barco | 749,673 | 778,191 |
| Yondo | 408,441 | 529,341 |
| Cantagallo | 35,088 | 36,348 |
| Dificil | 108,518 | 107,030 |
| Velasquez | 30,188 | 30,246 |
| Total | 2,338,228 | 2,553,672 |

Canada showed a decrease of 3,200 bbl. daily from October to November. Preliminary figures indicated a slight increase in Mexican production. For the Western Hemisphere outside the United States, the November daily average was up only 7,500 bbl. daily, or less than half of 1 per cent, over October.

In Europe and Africa, Egypt's production was off 5,400 bbl. daily in November. Netherlands' single field, Schoonebeek, was reported to have produced 13,200 bbl. daily in November, slightly higher than the rate for the previous month, but below the record of more than 14,500 bbl. daily in mid-September.

Though unchanged from October to November, western German produc-

**CRUDE-OIL PRODUCTION**

(Thousands of barrels daily

| Country— | Nov. | Prev. month | Nov. 1948 |
|---|---|---|---|
| Western Hemisphere: | | | |
| Argentina | 67.0 | 67.0 | 69.2 |
| Bolivia | 2.3 | 2.2 | 1.9 |
| Brazil | 0.2 | 0.2 | 0.5 |
| Canada | 62.4 | 65.6 | 40.6 |
| Chile | 0.5 | | |
| Colombia | 77.9 | 78.9 | 79.8 |
| Cuba | 0.6 | 0.6 | 0.7 |
| Ecuador | 7.1 | 7.1 | 7.3 |
| Mexico | 173.5 | 171.0 | 160.6 |
| Peru | 41.0 | 40.6 | 39.5 |
| Trinidad | 57.4 | 57.4 | 54.9 |
| Venezuela | 1,439.2 | 1,431.0 | 1,362.0 |
| Total | 1,929.1 | 1,921.6 | 1,817.0 |
| Europe and Africa: | | | |
| France | 1.3 | 1.2 | 1.1 |
| French Morocco | 0.4 | 0.4 | 0.3 |
| Germany (Western) | 17.8 | 17.8 | 13.1 |
| Italy | 0.2 | 0.2 | 0.2 |
| Netherlands | 13.2 | 12.1 | 11.6 |
| Egypt | 42.1 | 47.5 | 37.1 |
| United Kingdom | 0.9 | 0.9 | 0.9 |
| Total | 75.9 | 80.1 | 64.3 |
| Middle East: | | | |
| Bahrein | 30.2 | 30.0 | 30.4 |
| Iran | 591.6 | 543.6 | 551.0 |
| Iraq | 120.0 | 106.4 | 56.6 |
| Kuwait | 276.4 | 261.7 | 198.0 |
| Saudi Arabia | 454.5 | 486.9 | 481.8 |
| Total | 1,472.7 | 1,428.6 | 1,317.8 |
| Far East: | | | |
| British Borneo | 72.0 | 72.0 | 62.0 |
| Burma | 0.6 | 0.6 | 0.6 |
| China | 1.5 | 1.5 | 1.8 |
| India | 5.3 | 5.3 | 5.3 |
| Indonesia | 128.0 | 125.0 | 96.4 |
| Japan | 4.2 | 4.2 | 3.2 |
| New Guinea | 4.8 | 4.8 | |
| Pakistan | 2.2 | 2.2 | 1.3 |
| Total | 218.6 | 215.6 | 170.6 |
| Total foreign less Russia and E. Europe | 3,696.3 | 3,645.9 | 3,369.7 |
| Russia & E. Europe: | | | |
| Albania | 1.0 | 1.0 | 1.0 |
| Austria | 18.2 | 18.2 | 17.4 |
| Czechoslovakia | 0.9 | 0.9 | 0.4 |
| Hungary | 10.5 | 10.5 | 10.4 |
| Poland | 2.7 | 2.7 | 2.7 |
| Romania | 86.0 | 88.0 | 77.4 |
| Russia | 725.0 | 725.0 | 615.0 |
| Yugoslavia | 1.2 | 1.2 | 1.1 |
| Total | 845.5 | 847.5 | 725.4 |
| Total foreign | 4,541.8 | 4,493.4 | 4,095.1 |
| United States | 5,206.0 | 5,029.0 | 5,675.0 |
| World total | 9,747.8 | 9,522.4 | 9,770.1 |

The monthly production figures are authoritative for all countries in the Middle East and the more important producing countries in the Western Hemisphere and Europe. In some other cases, estimates have been made based on the performance of earlier months. Figures for the previous month and the year-earlier month do not agree in some instances with those heretofore published for those periods since revisions have been made due to later information. Data for Colombia and Canada excludes condensate. No up-to-date figures are available for Russia and the Communist-dominated countries of Eastern Europe, and here the information reflects what is believed to be the level of current production. Other figures in the tabulation are from official government reports or company sources.

**TREND SINCE JANUARY 1, 1949**

| | W. Hemisphere less U. S. | Middle East | Foreign less Russia & E. Europe |
|---|---|---|---|
| January | 1,706.4 | 1,358.2 | 3,308.6 |
| February | 1,688.6 | 1,400.2 | 3,340.2 |
| March | 1,625.9 | 1,393.4 | 3,280.2 |
| April | 1,678.2 | 1,485.2 | 3,488.3 |
| May | 1,768.5 | 1,417.6 | 3,472.8 |
| June | 1,768.8 | 1,375.7 | 3,433.3 |
| July | 1,800.2 | 1,338.7 | 3,428.1 |
| August | 1,859.9 | 1,323.9 | 3,473.1 |
| September | 1,931.8 | 1,351.5 | 3,574.9 |
| October | 1,921.6 | 1,428.6 | 3,645.9 |
| November | 1,929.1 | 1,472.7 | 3,696.3 |

**VENEZUELAN PRODUCTION BY MAJOR FIELDS—NOVEMBER 1949**
(More than 5,000 bbl. daily)

| | |
|---|---|
| Eastern Venezuela: | |
| Quiriquire | 65,034 |
| Temblador | 9,690 |
| Oficina | 34,939 |
| Jusepin | 26,552 |
| Mulata | 19,491 |
| San Joaquin | 10,371 |
| Leona | 5,171 |
| Pedernales | 8,221 |
| Tucupita | 8,150 |
| Nipa | 36,051 |
| Las Mercedes | 16,814 |
| San Roque | 5,647 |
| Santa Barbara | 20,808 |
| Tucupido | 7,738 |
| El Roble | 5,089 |
| Guario | 6,518 |
| Guico | 10,873 |
| Guara | 64,202 |
| Chimiri | 30,380 |
| Western Venezuela: | |
| Cabimas | 79,854 |
| Lagunillas | 348,624 |
| Tia Juana | 165,215 |
| La Paz | 153,208 |
| Sibucara | 6,147 |
| Bachaquero | 107,236 |
| Mene Grande | 48,496 |
| El Cubo | 12,040 |
| Mara | 86,050 |

tion in December, according to preliminary figures, rose to another record at 18,400 bbl. daily. This gave a daily average for the year of about 16,300 bbl. By areas, German production was reported as follows (figures in metric tons):

| | Nov. | Dec. |
|---|---|---|
| Emsland | 31,067 | 34,460 |
| Hanover | 37,158 | 36,676 |
| Schleswig-Holstein, Hamburg | 8,536 | 8,850 |
| Baden | 471 | 536 |
| Total | 75,232 | 80,522 |

Aside from the United States, greatest increases in production in November occurred in the Middle East. Iranian production climbed 48,000 bbl. daily to 591,600 bbl. (2,320,000 tons) in November, apparently as a result of greater demand for this non-dollar sterling oil. Kuwait showed a gain of nearly 6 per cent to a November daily average of 276,400 bbl. daily (1,120,439 tons).

The other increase in the Middle East was in Iraq, up about 13,500 bbl. daily to 120,000 bbl. daily. The Iraq increase was made possible by enlargement of the capacity of the 16-in. line to Tripoli. Saudi Arabian production dropped off 32,400 bbl. daily to a daily average of 454,500 bbl. daily in November. December production in Saudi Arabia was higher at 462,363 bbl. daily, though runs at the Ran Tanura refinery in the same month dropped off to 111,355 bbl. daily.

Russian production of oil as well as other commodities is an official secret but occasional announcements of the Soviet Government indicates that the country's output is rising. Oil Minister N. K. Baibakov said recently that 1949 production was 14 per cent over 1948.

## EUROPE

# French Refining

### Anglo-Iranian ready to put new Dunkirk unit on stream

OIL-REFINING operations are scheduled to be resumed this month in Dunkirk, France, after a lapse of nearly 10 years.

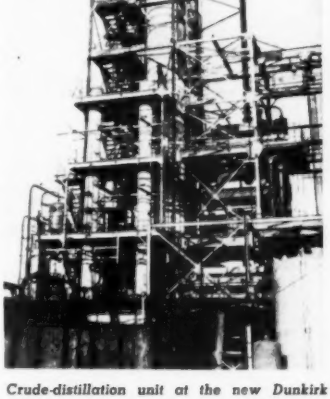
The French affiliate of Anglo-Iranian Oil Co., Ltd., has completed erection of a distillation unit which will process 300,000 tons a year (about 6,000 bbl. daily) while work on other refinery facilities continues.

The refinery stands upon the site of the prewar plant of Raffinerie de Petrole du Nord. This refinery of about 10,000-bbl. daily capacity was damaged by bombing in 1940 and finally dismantled by the Germans in 1943.

Soc. Generale des Huiles de Petrole, the Anglo-Iranian affiliate, had a refinery before the war at Courchelettes, near Douai. The Courchelettes refinery suffered severe war damage.

In accordance with the French plan of industrial concentration, it was decided that the Courchelettes refinery and that of R.P.N. at Dunkirk should be rebuilt as a single unit. The refining license of R.P.N. was transferred to S.G.H.P., and the latter company began rebuilding at Dunkirk in the summer of 1947 on an area double the size of the former site.

Considerable preliminary work was necessary, since the refinery site had to be cleared and the remains of the destroyed plant removed. Erection of the crude distillation unit, which was transferred from Courchelettes, began in the summer of 1948, together with other facilities and the necessary services.



*Crude-distillation unit at the new Dunkirk refinery of Soc. Generale des Huiles de Petrole.*

The entire reconstruction scheme contemplates completion by autumn of 1951 of one of the leading refineries in France. Full capacity will be 1,400,000 tons a year (about 28,000 bbl. daily). The refinery will embody up-to-date processing methods and will manufacture a complete range of products, including bottled gas, solvents, and lubricants. It will have a large gasoline capacity which will enable it to produce both motor and aviation fuel in considerable quantities.

The imminent resumption of operations at Dunkirk also has brought a renewal of oil traffic between the northern France port and the Middle East. To allow the start of the distillation unit, the tanker Kobad of the Association Petroliere fleet recently discharged its cargo at Dunkirk. This was the port's first oil cargo since 1940. Tankers are now to arrive regularly from Iran and Kuwait with crude for the refinery. S.G.H.P., in addition to its refining and marketing operations, has a controlling interest in the Association Petroliere tanker fleet, which now consists of 12 ships.

## New Refineries

Contracts will be awarded soon for a 10,000-bbl. per day refinery that will be built by Imperial Oil, Ltd., at Winnipeg, Manitoba, Canada. The project will cost about $10,000,000 and will be completed in May 1951.

Crude for the refinery will be moved either by rail or branch pipe line from a take-off point on the Interprovincial line at Gretna, Manitoba.

Field work will begin as soon as weather conditions permit early this spring.

The new refinery will be Winnipeg's first and will more than double the refining capacity of the Province of Manitoba whose three existing refineries total 7,500 bbl. daily. Imperial's announcement marks the third new postwar refinery scheduled for Canada's Prairie Provinces.

British American Oil Co., Ltd., recently announced plans for a 5,500-bbl. plant at Edmonton, Alberta. Land for the refinery has already been purchased by British American. Work on this project will begin as soon as weather permits, and should be completed within 10 months. The plant location is near Imperial's Edmonton refinery which was moved from Yukon 2 years ago and has since been expanded to 17,000 bbl. daily.

McColl-Frontenac Oil Co., Ltd., also plans an Edmonton refinery, to cost an estimated $10,000,000.

# PERSONALS

## Superintendent

### Dons heads manufacturing at Mid-Continent refinery

E. M. DONS, Tulsa, veteran of more than 27 years in refinery operations with Mid-Continent Petroleum Corp., has assumed duties as general superintendent of manufacturing operations at the company's West Tulsa refinery.

Formerly serving as assistant general superintendent in charge of engineering, construction, and mechanical operations at the refinery, Dons joined the company in 1922 as a draftsman in the manufacturing department. From 1928 to 1934 he served the firm in experimental engineering and in the development of new processes and equipment.

In 1935 Dons was named head of the designing-engineering department and 6 years later was appointed chief engineer at the refinery.

Appointed assistant general superintendent in charge of engineering, construction, and mechanical operations in March 1943, he was engaged in handling construction projects for the company during World War II and specialized in utilizing reclaimed and used materials.

**Ralph Booker** has been named general manager of National Cooperative Refinery Association, McPherson, Kans. For the past year he has served as vice president and assistant general manager of the Rock Island Refining Corp., Indianapolis.

**Frank E. Butterfield,** formerly chief clerk in Continental Oil Co.'s crude-oil trading department, Ponca City, Okla., has been named assistant manager of the department. **Jack Davis** has been named district geologist for the company's newly created Gulf Marine district, with headquarters in Morgan City, La.

**L. N. Tandy,** district engineer for Amerada Petroleum Corp. at Seminole, Okla., has been transferred in the same capacity to Fairbanks, Tex., and **B. J. Sinex, Jr.,** formerly district engineer at Fairbanks, has been transferred to Monument, N. M., as engineer.

**Edwin L. Smith,** formerly district manager at Oklahoma City for Superior Oil Co. of California, has been named a vice president of the company, along with **Frank Ittner,** Los Angeles. Smith recently returned from a European assignment, and Ittner has been serving as manager of exploration for the company's Pacific division since April 1949. **H. T. Olsen,** Los Angeles, is serving as district manager in Oklahoma City, and **T. W. Koch,** Oklahoma City division geologist, has been transferred to Midland, Tex., to supervise activities in the Permian basin, Oklahoma, and Kansas.

**Douglas Weatherston,** San Antonio consulting geologist, has been elected president of the South Texas Geological Society. Other officers, all of San Antonio, include: **John R. Sandidge,** Magnolia Petroleum Co., vice president; **Keith L. Rathbun,** Continental Oil Co., secretary; **Tom S. Gandy,** W. C. McBride, Inc., treasurer; and **Paul B. Hinyard,** Shell Oil Co., and **Walter J. Boyle,** consulting geologist, named to the executive committee. **Marion J. Moore,** Sunray Oil Corp., and **W. W. Hammond,** of Ralph E. Fair, Inc., were named district representatives to the American Association of Petroleum Geologists.

**Charles Leslie Rice, Jr.,** assistant vice president of Empire Trust Co.'s oil and gas division, New York City, has been appointed vice president of the division, according to **Henry C. Brunie,** president.

**F. A. C. Guepin** has been appointed a director and managing director of Anglo-Saxon Petroleum Co., Ltd., and Shell Petroleum Co., Ltd., of London. He has also been named a member and a delegate member of the board of de Bataafsche Petroleum Maatschappij, The Hague. **J. W. Platt,** member of the board of de Bataafsche, has been appointed a delegate member of that company's board.

**Sam Johnson,** geologist for Superior Oil Co. of California, has been named geologist at the firm's recently opened district office in Albuquerque.

F. C. ANDERSON

**Frank C. Anderson** has been appointed assistant to the vice president and assistant secretary for Gulf Oil Corp. and Gulf Refining Co., Houston, succeeding **L. E. Delcuze,** who retired recently. Anderson has been with Gulf since 1933, and within recent months has served as staff assistant and assistant secretary in the executive department. **Robert L. Grun,** lubrication engineer for Gulf Oil Corp. at Pittsburgh, has been appointed chief fuels and lubricants engineer in the process oil section.

**Schofield Andrews** has been named director of Barber Oil Corp., New York City, replacing **Leonard H. Kinnard,** Philadelphia, who resigned recently.

**S. R. Casey, Herb Von Eiff,** and **Louis L. Seiffert, Jr.,** all formerly with Woodley Petroleum Co., have formed a consulting organization under the name of Petroleum Management Co., with offices in Houston. They will specialize in appraisal and consulting work in geology and engineering. The trio also has organized the Livingston Drilling & Well Service, Inc.

**Russell W. Haller,** engineer for Continental Oil Co. at Thermopolis, Wyo., has been transferred in the same capacity to the Casper, Wyo., area.

**G. W. Auxier,** K. C., Edmonton, Alta., Canada, has been appointed executive vice president and general manager of Western Canada Petroleum Association, with headquarters in Calgary.

**W. C. Coffee** is now serving as district production superintendent for Wasson Oil Co. at Owensboro, Ky., and **Ross Sipari,** formerly with Sohio Petroleum Co. at Evansville, Ind., is serving as division land man.

**James H. McCutchan,** formerly assistant treasurer of Creole Petroleum Corp., has been elected treasurer succeeding **J. P. O'Brien,** who has retired from the company after 20 years of service.

**R. G. Rankin,** The Texas Co., New York City, has been named general chairman of the American Petroleum Institute's financial and accounting committee, and **J. R. Mulvey,** Humble Oil & Refining Co., Houston, has been named general vice chairman.

# PERSONALS

**Hugh Burchfield,** geologist for Standard Oil Co. of Texas, has opened divisional offices for the company in Albuquerque.

**Howard D. Atha,** independent oil producer, Mount Pleasant, Mich., has opened offices in Evansville, Ind.

**Marlowe D. Melvin,** formerly geologist for Carter Oil Co. for 10 years, has joined the Evansville, Ind., staff of Ryan Oil Co. in that capacity.

**Dale C. Smith,** production engineer for Stanolind Oil & Gas Co. at Lander, Wyo., has been moved to the Elk Basin, headquarted at Powell, Wyo., in the same capacity.

**W. O. Henderson,** superintendent for Ohio Oil Co. at Allegan, Mich., has been transferred to the Reed City, Mich., area, in the same capacity.

**Leland H. Miller,** engineer trainee for Gulf Refining Co.'s producing division, Houston, has been transferred to the Lafayette, La., area.

**J. E. Maledy,** assistant production foreman at Taft, Calif., for Standard Oil Co. of California, has been transferred to San Francisco as senior production analyst.

**Leonard Mercer,** geologist for Sinclair Oil & Gas Co. at Casper, Wyo., has been transferred to the company's Billings, Mont., office in the same capacity.

**Burrell Harrell,** general drilling superintendent for Fred M. Manning, Inc., is now located in Breckenridge, Tex., where the firm has recently established regional drilling headquarters. **Joe Christeeson** is serving as assistant superintendent.

**L. W. Folmar,** petroleum engineer at Crane, Tex., for The Texas Co., has been transferred to the West Texas-New Mexico district, with headquarters in Midland.

**Joe B. Alford,** Dallas, has been appointed secretary of the petroleum division of A.I.M.E. to succeed **William H. Strang** who recently resigned to become affiliated with the production division of A.P.I. Alford formerly was editor of the association's monthly publication, Petroleum Technology. Both will continue to reside in Dallas.

**William Wade,** geologist for Carter Oil Co. at Vernal, Utah, has joined Sun Oil Co. as a consultant at Salt Lake City.

**R. E. Smith** has taken over duties as assistant district superintendent of Sinclair Oil & Gas Co.'s Bristow-Kiefer district, with headquarters at Kiefer, Okla. He formerly served as district foreman at McPherson, Kans.

**Irving K. Peck,** vice president and general manager of Manufacturers Light & Heat Co. and affiliated Columbia Gas System companies, has been named president of the Pennsylvania Natural Gas Men's Association.

**Rex V. Wilson,** engineer for Continental Oil Co. supervising building construction at the firm's Billings, Mont., refinery, has been transferred to the company's Rawlins, Wyo., headquarters.

**H. E. Thompson,** Amerada Petroleum Corp., was recently elected president of the Wyoming Landmen's Association. Other officers include: **Walter Wittlinger,** Cities Service Oil Co., first vice president; **James Brickell,** California Co., second vice president; **Tom Roberts,** Tide Water Associated Oil Co., secretary; **Harold Mott,** Sohio Petroleum Co., assistant secretary; and **Spencer Tryon,** General Petroleum Corp., treasurer.

**Frank G. Crosby,** London, Ont., Canada, has been appointed assistant to the managing director of Sun Oil Co., Ltd., with headquarters in Toronto.

**B. B. Bradish,** Skelly Oil Co., Albuquerque, was recently elected president of the newly organized Albuquerque Geological Society. Other officers include: **Dr. S. A. Wengerd,** New Mexico University geological department, and **Tom Scott,** geologist, vice presidents; and **Miss Jean LaPaz,** Sinclair Oil & Gas Co., secretary-treasurer.

**Stuart Cronin,** division geologist at Billings, Mont., for Pure Oil Co., has been transferred to the company's Tulsa offices in the same capacity. **Fred Devin,** Tulsa, has replaced Cronin in Billings.

**A. J. Olson,** chief engineer for Continental Supply Co., Dallas, has been elected president of the Dallas-Fort Worth Chapter of Nomads. Other officers include: **Kan W. Davis,** president, Mid-Continent Supply Co., Fort Worth, vice president; **Courtney Berlin,** Baker Oil Tool Co., secretary; **Eugene Shiels,** sales engineer for International Derrick & Equipment Co., assistant secretary; **Ed Whetzle,** Drilling Magazine, treasurer; **R. E. Todd,** Core Laboratories, Inc., assistant treasurer; **Johnny Everroad,** president, Cummins Sales & Service, sergeant-at-arms; and **Jim Bridges,** Buda Sales & Service, assistant sergeant-at-arms.

**Charles E. Simons,** vice president and general manager of the Texas Mid-Continent Oil and Gas Association, has been named representative for the southwestern petroleum industry on the policy and planning subcommittee of the National Oil Industry Information Committee.

**C. R. Skidmore** has acquired the interests of **A. N. Griffith** in the Tri-Service Drilling Co., Midland, Tex. He formerly was vice president of Peterson Drilling Co., Shreveport.

*Newly elected officers of the Petroleum Club of Los Angeles are shown during the January meeting. Left to right: Howard C. Pyle, Continental Consolidated Corp., treasurer; Henry Salvatori, Western Geophysical Co., president; and James G. Leovy, Western Gulf Oil Co., secretary. Others elected include: Frank A. Morgan, Richfield Oil Corp., vice president; P. S. Magruder, General Petroleum Corp.; E. Fred Davis, consultant; and Rollin Eckis, Richfield Oil Corp., named to the board of directors.*

# PERSONALS

*Edwin S. Hall, left, vice president and former general counsel of Esso Standard Oil Co., receives congratulations from Stanley C. Hope, president of the company, on completion of 30 years of service. Hall, who will retire on January 30, joined the parent company, Standard Oil Co. (N. J.), in 1920, and in 1934 was elected a director and in 1940 a vice president. He also served as president of Esso Standard Oil Co. of Pennsylvania.*

**M. W. Branum** is Tri-Service's president; **E. T. Smith** is vice president, and **H. L. Fouche** is secretary-treasurer.

**Fletcher B. Emerson,** special assistant to the president of Continental Oil Co., Ponca City, Okla., has been appointed director of the company's newly created training division within the industrial-relations department. The division will coordinate and broaden the training activities of the firm and will make available to all parts of the organization centralized training facilities and information on improvements in training methods. Emerson is a graduate of Virginia Military Institute, with a B.S. degree in civil engineering. He joined Continental's producing department in 1939, and in 1941 was named field engineer at Ponca City. Following service in World War II he returned as a district petroleum engineer in Kansas.

*F. B. EMERSON*

**Dr. Herman E. Ries, Jr.,** head of the physical chemistry department of Sinclair Refining Co.'s research laboratories, Harvey, Ill., will receive the Ipatieff prize in chemistry for his contributions to the knowledge of catalysts.

**Stanley Weiner,** manager of the West Texas division of Ted Weiner & Associates, has moved from Fort Worth to Midland, Tex., where he will open division offices.

**E. D. True,** Fort Worth, veteran Gulf Oil Corp. refinery chief clerk, has retired after 41 years of service. He joined Gulf Refining Co. at Port Arthur, Tex., refinery in 1909 and later transferred to the firm's Fort Worth refinery.

## SHIFTS

**Loyd Burson,** superintendent, Wheless Drilling Co., Paradis to Vacherie, La.; **D. C. Chambers,** superintendent, Wheless Drilling Co., Lafayette to Golden Meadow, La.; **L. M. Rhea,** superintendent, Wheless Drilling Co., Junction City, Ark., to Homer, La.; **W. H. Terry,** superintendent, Wheless Drilling Co., Ruston to Vivian, La.

**Edward L. Mollman,** engineer, Standard Oil Co. (Ind.), Whiting, Ind., to Wood River, Ill.; **L. V. Bass,** foreman, The Texas Co., Okmulgee, Okla., to Tulsa; **Leland V. Gefvert,** engineer, Richfield Oil Corp., Fresno to Bakersfield, Calif.; **Jack H. Liem,** engineer, Grey Wolf Drilling Co., Angleton to Tomball, Tex.; **Charles W. Hancock,** engineer, Pure Oil Co., San Marcos, Tex., to Madill, Okla.; **E. K. Bissett,** superintendent, Houston Oil Co. of Texas, Conroe to Beeville, Tex.; **L. D. Cartwright, Jr.,** geologist, Union Oil Co. of California, Houston to Los Angeles.

**Philip Hill,** superintendent, Standard Oil Co. (Ind.), Whiting, Ind., to Lansing, Ill.; **Robert Davenport,** engineer, Amerada Petroleum Corp., Los Animas to Lamar, Colo.; **Dr. G. H. Duerksen,** chemist, Phillips Petroleum Co., Bartlesville, Okla., to Hillsboro, Kans.; **M. W. Norris,** Magnolia Petroleum Co., Jal, N. M., to Ozona, Tex.; **Neal Martin,** superintendent, W. H. Black Drilling Co., Big Lake, Tex., to Roswell, N. M.

**E. A. Weichert,** superintendent, Gulf Oil Corp., Odessa to Borger, Tex.; **Floyd B. Inks, Jr.,** engineer, Frank & George Frankel, Breaux Bridge, La., to Austin, Tex.; **Clifford F. Rakestraw,** superintendent, Stanolind Oil & Gas Co., Rock Springs, Wyo., to Rangely, Colo.; **C. L. Quillen,** Carter Oil Co., Guthrie to Wewoka, Okla.

# DEATHS

**C. M. Rosebrugh,** 61, pioneer builder and designer of pipe lines, died January 12 at Houston. He had been with Gulf Oil Corp.'s pipe-line division since 1919 and was chief engineer and president of Project 5 since 1924. He designed and constructed the Mene Grande pipe-line system in Venezuela, and was active in the development of the pipe line for the Kuwait Oil Co. in the Middle East.

**Harry C. Meyer,** assistant general production superintendent for Signal Oil & Gas Co., died in Garden Grove, Calif., January 16.

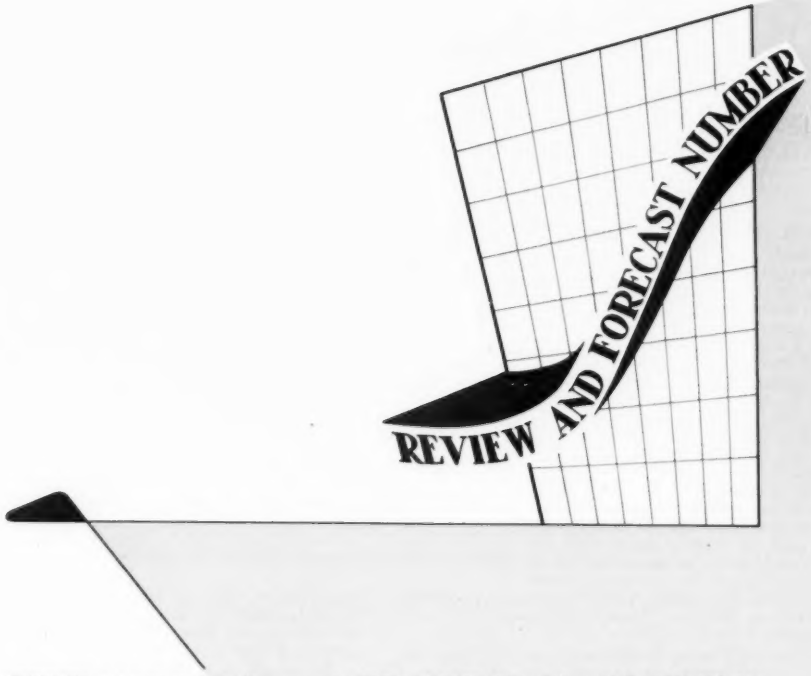
**Roger Leason,** vice president and treasurer of Emsco Derrick & Equipment Co., and president of the Purchasing Agents Association, died in Los Angeles January 11.

**Sam K. Baird,** 68, Shreveport oil man who was a pioneer in development of the Claiborne oil field, Louisiana, died in Shreveport January 16.

**Gen. Alva J. Niles,** 67, Tulsa, retired oil man, banker, and brigadier general of the Oklahoma National Guard, died in Laredo, Tex., January 19.

**C. T. McWhorter,** 44, machinist, Dow Chemical Co., Velasco, Tex., died January 12.

**Bert Brooks,** 60, pipe-line contractor, died in Dallas January 22.




**DEMAND**, total U. S. including exports: 1949—6,140,270 bbl. daily; 1950—6,491,000 bbl. daily, increase of 5.7 per cent.

**CRUDE PRODUCTION**, U. S.: 1949—5,043,000 bbl. daily; 1950—5,340,500 bbl. daily, increase of 5 per cent.

**IMPORTS**, crude and products: 1949—635,000 bbl. daily; 1950—710,000 bbl. daily, increase of 10 per cent.

**EXPORTS:** 1949—325,000 bbl. daily; 1950—300,000 bbl. daily, decrease of 5 per cent.

**DRILLING:** Total wells, 1949—39,038; 1950—37,414, decrease of 4.2 per cent; total footage, 1949—138,003,000 ft.; 1950—138,478,000 ft., increase of 0.3 per cent.

**EXPLORATION:** Wildcats drilled, 1949—7,294, 17.6 per cent successful; 1950—7,296, wildcats scheduled, about same as 1949.

**RESERVES:** U. S. proven, crude and natural-gas liquids, January 1949 — 27,325 million barrels; January 1950—28,586 million barrels, increase of 1,261 million barrels. Ratio of crude reserves to withdrawal rate: January 1949—12.1; January 1950—13.8.

**REFINING:** Crude run to stills, 1949—5,324,000 bbl. daily; 1950—5,648,000 bbl. daily, increase of 6 per cent.

**LIGHT HYDROCARBONS:** 1949—17,877,000 gal. daily; 1950—18,640,000 gal. daily, increase of 4 per cent.

**CONSTRUCTION:** 1949 added 400,000 bbl. daily refining capacity, brought light-hydrocarbons capacity to 30,000,000 gal. daily; added 15,000 miles of pipe lines; 1950 will see increases in all fields but particularly pipe line.

**WORLD:** Crude production, 1949—9,311,600 bbl. daily; 1950—9,768,000 bbl. daily, increase of 5 per cent.

**NATURAL GAS:** Dry reserves, January 1949, 175,187 billion cubic feet; January 1950, 178,136 billion, increase of 2,949 billion.

ANNUAL FEATURE OF THE OIL AND GAS JOURNAL

# 37,414 Wells, 138 Million Feet Predicted for 1950 Drilling

**by Charles J. Deegan**

A DECREASE of only 4.2 per cent in wells and practically no change in footage as compared to 1949. That sums up the 1950 drilling program of the industry, according to the operators' plans on January 1.

As a whole this program is substantially more optimistic than some of the speculation which has been common in the industry. It represents the sum total of actual plans of individual operators as given to The Oil and Gas Journal in confidence.

All of the decrease in wells will be in the field-development class, with wildcatting scheduled for almost exactly the same number as last year. The shift in drilling plans calls for more wells in deeper areas and fewer wells in some of the shallower areas. That is why the footage planned remains practically the same as last year, despite the decrease in wells scheduled.

Table 1 shows in condensed form just what the 1950 over-all plans are now as compared to what happened in 1949. It also shows the difference in trend between the plans of the large operators as one group and those of the smaller operators as another group.

To permit our readers to form their own judg-

TABLE 1—1950 DRILLING FORECAST—TOTAL U. S.

| | Total wells | Total footage (000 omitted) | Total wildcats | Total field wells |
|---|---|---|---|---|
| All operators, 1950 forecast | 37,414 | 138,478 | 7,296 | 30,118 |
| All operators, 1949 actual | 39,038 | 138,003 | 7,294 | 31,744 |
| Increase or decrease | —1,624 | +475 | +2 | —1,626 |
| Change, per cent | —4.2 | +0.3 | 0 | —5.1 |
| 27 large operators—1950 | 8,062 | 43,303 | 1,036 | 7,026 |
| 27 large operators—1949 | 8,137 | 40,824 | 993 | 7,144 |
| All other operators—1950 | 29,352 | 95,175 | 6,260 | 23,092 |
| All other operators—1949 | 30,901 | 97,179 | 6,301 | 24,600 |

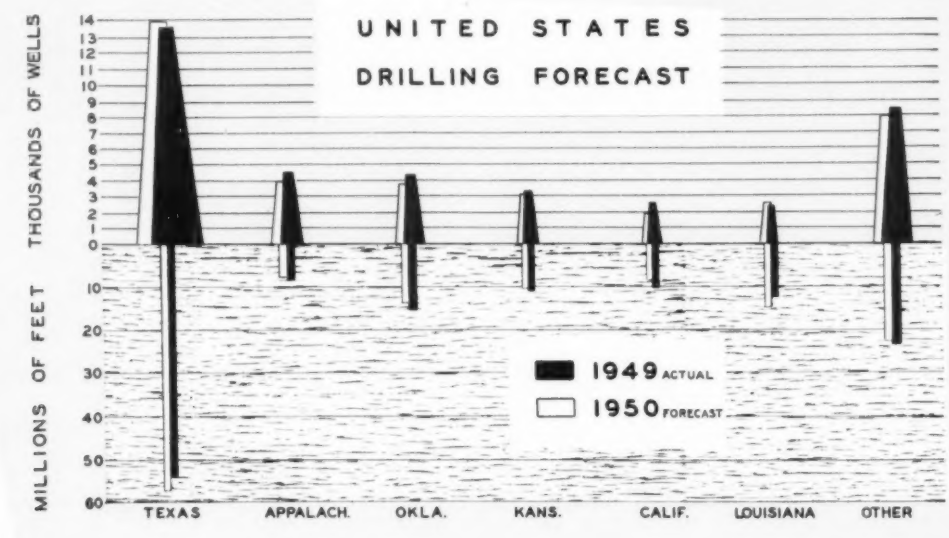


**TABLE 2—JANUARY 1949 DRILLING FORECAST VS. 1949 ACTUAL**

| | Total wells | Total footage (000 omitted) | Total wildcats | Total field wells |
|---|---|---|---|---|
| All operators—1949 forecast | 37,550 | 137,532 | 7,053 | 30,497 |
| All operators—1949 actual | 39,038 | 138,003 | 7,294 | 31,744 |
| Difference | +1,488 | +471 | +241 | +1,247 |
| 27 large operators—1949 forecast | 10,489 | 50,740 | 1,381 | 9,108 |
| 27 large operators—1949 actual | 8,137 | 40,824 | 993 | 7,144 |
| Difference | —2,352 | —9,916 | —388 | —1,964 |
| All other operators—1949 forecast | 27,061 | 86,792 | 5,672 | 21,389 |
| All other operators—1949 actual | 30,901 | 97,179 | 6,301 | 24,600 |
| Difference | +3,840 | +10,387 | +629 | +3,211 |

ment about how the operators' final achievements are apt to compare with their original forecast, Table 2 is presented. This shows that in 1949 all operators finally drilled 1,488 more wells than they originally planned in January 1949. This was an increase of about 4 per cent over original intentions. The final total footage figure for 1949 was less than 1 per cent more than the original forecast. They drilled better than 3 per cent more wildcats and a little over 4 per cent more development wells than originally scheduled.

The breakdown between large and small operators, showing their respective original schedules and final results, may reflect their different methods of planning. The larger companies are likely to set a maximum limit on drilling at the beginning of the year, because of over-all capital budget requirements. This can be reduced, but it is very difficult to increase it materially. The smaller operators tend to plan their operations more on a quarter-to-quarter basis. Their January forecasts are apt to be a minimum estimate. At least that is how the January 1949 schedules worked out in practice.

The details of the 1950 program, area by area, with changes from the 1949 actual, are shown in Table 3. The outstanding feature is the substantial increase scheduled for West Texas and New Mexico, followed closely by the Texas Gulf Coast area. Louisiana, both northern and southern portions, also seems to be in line for a fairly substantial increase. Kentucky is scheduled for a good increase, contrary to the signs for neighboring Illinois and Indiana. In proportion to its previous activity, the Texas Panhandle is slated for a fair increase. In most other areas either minus signs or very small gains seem to be slated.

Looking at the over-all picture, it appears that operators feel more optimistic than the way they talk. There is no question but that talk of at least a 10 per cent cut in both wells and footage for 1950 has been quite common among many oil people. After looking at hundreds of individual programs for 1950, one can only conclude that this talk must be based on hearsay about "what other people are going to do." The actual plans of the operators are quite different.

## Table 3—Drilling Program Forecast for 1950 by Areas

| | 1950 program forecast | | | | Change from 1949 actual | | | |
|---|---|---|---|---|---|---|---|---|
| | Wildcat wells | Field wells | Total wells | Total footage | Wildcat wells | Field wells | Total wells | Total footage |
| Alabama | 5 | 3 | 8 | 30,000 | — 9 | — 2 | — 11 | — 65,000 |
| Arkansas | 66 | 210 | 276 | 1,110,000 | — 12 | — 34 | — 46 | — 173,000 |
| California | 365 | 1,620 | 1,985 | 8,930,000 | —122 | — 405 | — 527 | —1,513,000 |
| Colorado | 50 | 24 | 74 | 315,000 | + 2 | — 10 | — 8 | — 44,000 |
| Florida | 7 | 3 | 10 | 80,000 | — 12 | — 2 | — 14 | — 101,000 |
| Illinois | 867 | 1,650 | 2,517 | 5,750,000 | +143 | — 337 | — 194 | — 612,000 |
| Indiana | 432 | 843 | 1,275 | 2,357,000 | — 39 | + 35 | — 4 | |
| Kansas | 458 | 2,585 | 3,043 | 10,100,000 | — 64 | — 280 | — 344 | — 615,000 |
| Kentucky | 200 | 1,176 | 1,376 | 2,340,000 | + 31 | + 298 | + 329 | + 487,000 |
| Louisiana total | 291 | 2,326 | 2,617 | 14,500,000 | + 10 | + 236 | + 246 | +2,023,000 |
| Northern | 108 | 1,476 | 1,584 | 5,400,000 | + 2 | + 134 | + 136 | + 947,000 |
| Southern | 183 | 850 | 1,033 | 9,100,000 | + 8 | + 102 | + 110 | +1,076,000 |
| Michigan | 295 | 485 | 780 | 1,890,000 | — 49 | — 166 | — 215 | — 319,000 |
| Mississippi | 131 | 169 | 300 | 2,160,000 | + 16 | — 50 | — 34 | — 228,000 |
| Montana | 42 | 175 | 217 | 525,000 | — 3 | — 59 | — 62 | — 125,000 |
| Nebraska | 24 | 16 | 40 | 160,000 | + 6 | + 7 | + 13 | + 61,000 |
| New Mexico | 119 | 462 | 581 | 2,900,000 | + 45 | + 35 | + 80 | + 481,000 |
| New York | | 727 | 727 | 1,045,000 | | — 155 | — 155 | — 220,000 |
| Ohio | 37 | 1,069 | 1,106 | 2,360,000 | 0 | + 22 | + 22 | + 74,000 |
| Oklahoma | 925 | 2,925 | 3,850 | 13,800,000 | +121 | — 623 | — 502 | —1,539,000 |
| Pennsylvania | 25 | 1,530 | 1,555 | 2,400,000 | + 19 | — 384 | — 365 | — 681,000 |
| Texas total | 2,822 | 11,175 | 13,997 | 61,555,000 | + 31 | + 301 | + 332 | +4,093,000 |
| Dists. 1 and 4 (SW) | 603 | 1,075 | 1,678 | 7,325,000 | — 42 | — 147 | — 189 | —1,021,000 |
| Dists. 2 and 3 (G.C.) | 565 | 1,827 | 2,392 | 14,290,000 | + 34 | + 378 | + 412 | +2,410,000 |
| Dists. 5, 6, and 6-P (E) | 118 | 747 | 865 | 4,200,000 | — 68 | — 181 | — 249 | — 792,000 |
| Dists. 7-B and 9 (N) | 965 | 2,990 | 3,955 | 11,380,000 | —102 | — 427 | — 529 | —1,451,000 |
| Dists. 7-C and 8 (W) | 564 | 3,506 | 4,070 | 21,150,000 | +221 | + 588 | + 809 | +4,752,000 |
| Dist. 10 (PH.) | 7 | 1,030 | 1,037 | 3,210,000 | — 12 | + 90 | + 78 | + 195,000 |
| Utah | 11 | 31 | 42 | 210,000 | — 8 | + 1 | — 7 | — 35,000 |
| West Virginia | 36 | 485 | 521 | 1,520,000 | + 12 | — 9 | + 3 | + 32,000 |
| Wyoming | 82 | 429 | 511 | 2,410,000 | — 49 | — 27 | — 76 | — 393,000 |
| Miscellaneous | 6 | | 6 | 31,000 | — 67 | — 18 | — 85 | — 113,000 |
| Total United States | 7,296 | 30,118 | 37,414 | 138,478,000 | + 2 | —1,626 | —1,624 | + 475,000 |
| 27 Large operators | 1,036 | 7,026 | 8,062 | 43,303,000 | + 43 | — 118 | — 75 | +2,479,000 |
| All other operators | 6,260 | 23,092 | 29,352 | 95,175,000 | — 41 | —1,508 | —1,549 | —2,004,000 |

# New All-Time Record Set in Footage Drilled During 1949

THE continuance of a postwar upward trend in drilling operations resulted in 39,038 wells completed in 1949 with a total depth of 138,002,964 ft. This number of completions threatened the previous year's all-time high, and the footage drilled passed 1948's record. Total wells were off 740, or 1.8 per cent, and footage increased some 611,000 ft., or approximately 0.5 per cent, to become the highest in history.

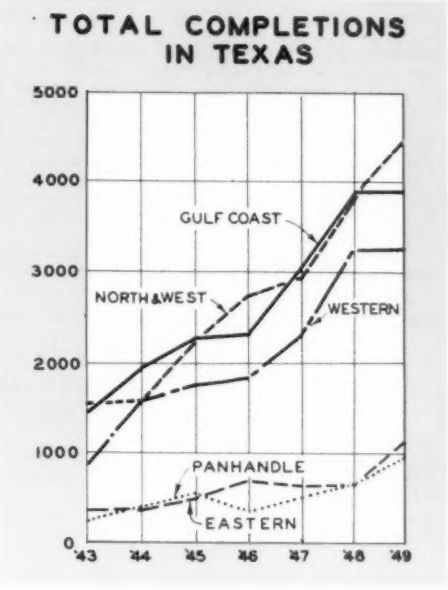
The new record footage exceeded operators' expectations for the year planned in January 1949 by 469,000 ft., and fell short of their revised forecast as of July 1949 by only 94,000 ft. *(See The Oil and Gas Journal, January 27, 1949, and July 28, 1949.)*

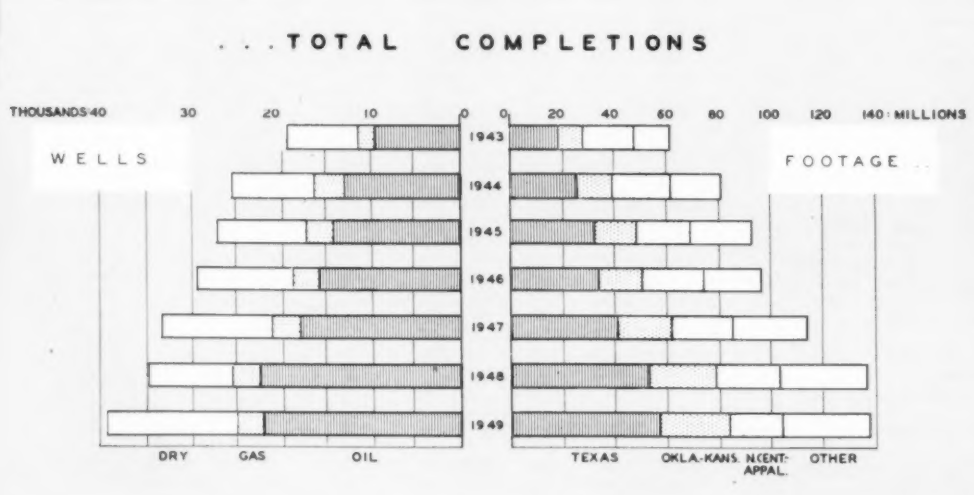
### Deep Drilling

Average footage was 3,538 ft. as against 3,454 ft. in 1948. This increase in the over-all average depth was accounted for mainly by the fact that while shallow completions in the eastern fields declined 2,029 wells, almost 38 per cent, wells in the deeper areas (Texas, New Mexico, California, Wyoming, Oklahoma, Louisiana, and Mississippi) increased 1,060, almost 5 per cent. Deeper wells than ever before were drilled, and seven states set individual new footage records during the year: Arkansas, Indiana, Kansas, Louisiana, Michigan, Texas, and Wyoming.

### Successes

Although slightly below the previous year percentagewise, the ratio of total successes remained



## Total United States Completions by States

| | Total comp. | Oil | Gas | Service | Dry | Average footage | Total comp. 1948 |
|---|---|---|---|---|---|---|---|
| Alabama | 19 | 4 | 0 | 0 | 15 | 4,657 | 21 |
| Arkansas | 322 | 171 | 3 | 1 | 147 | 3,984 | 301 |
| California | 2,512 | 1,914 | 40 | 0 | 558 | 4,157 | 2,876 |
| Colorado | 82 | 21 | 4 | 0 | 57 | 4,378 | 207 |
| Florida | 24 | 4 | 0 | 0 | 20 | 7,529 | 26 |
| Georgia | 6 | 0 | 0 | 0 | 6 | 2,483 | 3 |
| Illinois | 2,711 | 1,392 | 6 | 5 | 1,308 | 2,347 | 2,438 |
| Indiana | 1,279 | 521 | 30 | 3 | 725 | 1,843 | 1,082 |
| Kansas | 3,387 | 1,683 | 419 | 31 | 1,254 | 3,459 | 3,284 |
| Kentucky | 1,047 | 448 | 193 | 4 | 402 | 1,770 | 908 |
| Louisiana | 2,371 | 1,524 | 211 | 4 | 632 | 5,262 | 2,325 |
| Northern | 1,448 | 927 | 192 | 4 | 325 | 3,075 | 1,554 |
| Southern | 923 | 597 | 19 | 0 | 307 | 8,802 | 771 |
| Michigan | 995 | 426 | 23 | 70 | 476 | 2,220 | 895 |
| Mississippi | 334 | 161 | 5 | 1 | 167 | 7,150 | 428 |
| Montana | 279 | 130 | 54 | 0 | 87 | 2,328 | 345 |
| Mo., Neb. | 49 | 12 | 6 | 0 | 31 | 2,240 | 62 |
| New Mexico | 501 | 334 | 53 | 0 | 114 | 4,828 | 606 |
| New York | 882 | 446 | 0 | 436 | 0 | 1,434 | 1,344 |
| Ohio | 1,084 | 349 | 308 | 40 | 387 | 2,110 | 1,393 |
| Oklahoma | 4,352 | 2,483 | 213 | 44 | 1,612 | 3,525 | 4,293 |
| Pennsylvania | 1,920 | 956 | 215 | 697 | 52 | 1,605 | 3,159 |
| Tennessee | 35 | 8 | 0 | 0 | 27 | 807 | 58 |
| Texas | 13,665 | 8,613 | 746 | 46 | 4,260 | 4,205 | 12,251 |
| North Central (9) | 2,571 | 1,500 | 9 | 29 | 1,033 | 2,772 | 2,384 |
| West Central (7-B) | 1,913 | 942 | 43 | 5 | 923 | 2,987 | 1,466 |
| West (7-C & 8) | 3,261 | 2,788 | 24 | 3 | 446 | 5,028 | 3,251 |
| Panhandle (10) | 959 | 580 | 310 | 0 | 69 | 3,144 | 666 |
| Eastern (5, 6, & 6-P) | 1,114 | 792 | 50 | 7 | 265 | 4,481 | 831 |
| Gulf Coast (2 & 3) | 1,980 | 1,103 | 182 | 0 | 695 | 5,000 | 1,896 |
| Southwest (1 & 4) | 1,867 | 908 | 128 | 2 | 829 | 4,470 | 1,957 |
| Utah | 49 | 25 | 1 | 0 | 23 | 5,001 | 18 |
| West Virginia | 518 | 87 | 344 | 0 | 87 | 2,873 | 846 |
| Wyoming | 587 | 322 | 8 | 0 | 257 | 4,775 | 584 |
| Miscellaneous | 28 | 0 | 5 | 0 | 23 | 3,228 | 25 |
| Total 1949 | 39,038 | 22,042 | 2,887 | 1,382 | 12,727 | 3,538 | |
| Total 1948 | 39,778 | 22,585 | 2,897 | 2,270 | 12,026 | 3,454 | 39,778 |
| Total 1947 | 33,122 | 17,999 | 3,305 | 2,280 | 9,538 | 3,443 | |
| Total 1946 | 29,229 | 15,851 | 3,090 | 2,237 | 8,051 | 3,321 | |
| Total 1945 | 26,879 | 14,297 | 2,899 | 2,212 | 7,471 | 3,469 | |
| Total 1944 | 25,262 | 13,029 | 3,067 | | *9,166 | 3,234 | |
| Total 1943 | 19,477 | 9,717 | 1,897 | | *7,863 | 3,250 | |
| Total 1942 | 18,150 | 8,501 | 2,089 | | *7,560 | 3,158 | |

*Includes service wells.

high for 1949. There were 24,929 oil and gas producers, or 66.2 per cent, of a total of 37,656 completions not including wells drilled expressly as input, disposal, or storage wells. This compares with 25,482 successful ventures, or 67.9 per cent out of 37,508 completions (excluding service wells) in 1948.

### New Wildcat Record

An unprecedented number of exploratory tests were drilled. There was a total of 7,294, a gain of 417 wells, slightly better than 6 per cent, over the preceding year. The emphasis given to exploration was further evidenced by the fact that the total number of wildcats completed surpassed operators' January 1949 forecast by 241 wells or 3.4 per cent, and their midyear revised schedule by 304 wells or 4.1 per cent. *(See above references.)*

### Most Active Areas

With two exceptions in the East and West Coast areas, activity seemed centered in the middle portion of the nation. Six states noted more than 2,000 completions, and accounted for 74.3 per cent of the total. Texas, as usual, led the parade with 13,665 completions, or 35 per cent of all wells drilled. Oklahoma and Kansas retained their second and third positions, respectively; Illinois displaced Pennsylvania for fourth; California remained fifth; and Louisiana moved up to sixth. Pennsylvania, Indiana, Ohio, and Kentucky (ranking from seventh to tenth in that order) each recorded over 1,000 wells, representing 13.6 per cent of total completions for the past 12 months.

Almost 82 per cent of all the hole drilled was accounted for by six states, with more than 6,000,000 ft. each. Texas led with 41.9 per cent of the

### DRILLING METHODS—1949

| | Total | Rotary | Cable |
|---|---|---|---|
| Alabama | 19 | 19 | 0 |
| Arkansas | 322 | 322 | 0 |
| California | 2,512 | 2,512 | 0 |
| Colorado | 82 | 82 | 0 |
| Florida | 24 | 24 | 0 |
| Illinois | 2,711 | 2,462 | 249 |
| Indiana | 1,279 | 859 | 420 |
| Kansas | 3,387 | 3,083 | 304 |
| Kentucky | 1,047 | 598 | 449 |
| Louisiana | 2,371 | 2,369 | 2 |
| Northern | 1,448 | 1,448 | 0 |
| Southern | 923 | 921 | 2 |
| Michigan | 995 | *442 | 553 |
| Mississippi | 334 | 334 | 0 |
| Montana | 279 | 169 | 110 |
| New Mexico | 501 | 442 | 59 |
| N. Y., Pa., W. Va. | 3,320 | 0 | 3,320 |
| Ohio | 1,084 | 0 | 1,084 |
| Oklahoma | 4,352 | 3,830 | 522 |
| Texas | 13,665 | 12,795 | 870 |
| No. and W. Central | 4,484 | 3,991 | 493 |
| West | 3,261 | 2,931 | 330 |
| Panhandle | 959 | *916 | 43 |
| Eastern | 1,114 | 1,110 | 4 |
| Gulf Coast | 1,980 | 1,980 | 0 |
| Southwest | 1,867 | 1,867 | 0 |
| Utah | 49 | 46 | 3 |
| Wyoming | 587 | 527 | 60 |
| Miscellaneous | 118 | 90 | 7 |
| Total | 39,038 | 31,005 | 8,033 |

*Includes wells drilled by rotary and finished by cable tools.

### DEPTH CLASSIFICATIONS—1949

| | Under 2,500 ft. | 2,500-5,000 ft. | 5,000-7,500 ft. | 7,500-10,000 ft. | 10,000-12,500 ft. | Over 12,500 ft. |
|---|---|---|---|---|---|---|
| Alabama | 1 | 11 | 4 | 2 | 0 | 1 |
| Arkansas | 76 | 175 | 35 | 36 | 0 | 0 |
| California | 865 | 889 | 427 | 206 | 103 | 22 |
| Colorado | 22 | 21 | 28 | 8 | 2 | 1 |
| Florida | 1 | 8 | 4 | 2 | 9 | 0 |
| Illinois | 1,230 | 1,481 | 0 | 0 | 0 | 0 |
| Indiana | 1,052 | 227 | 0 | 0 | 0 | 0 |
| Kansas | 481 | 2,891 | 15 | 0 | 0 | 0 |
| Kentucky | 801 | 242 | 4 | 0 | 0 | 0 |
| Louisiana | 1,030 | 268 | 305 | 389 | 319 | 60 |
| Northern | 999 | 168 | 180 | 70 | 31 | 0 |
| Southern | 31 | 100 | 125 | 319 | 288 | 60 |
| Michigan | 656 | 337 | 2 | 0 | 0 | 0 |
| Mississippi | 4 | 33 | 174 | 63 | 60 | 0 |
| Montana | 168 | 93 | 12 | 4 | 2 | 0 |
| New Mexico | 85 | 251 | 96 | 43 | 16 | 10 |
| N. Y., Pa., W. Va. | 2,903 | 382 | 29 | 5 | 1 | 0 |
| Ohio | 627 | 448 | 9 | 0 | 0 | 0 |
| Oklahoma | 1,434 | 1,964 | 746 | 130 | 73 | 5 |
| Texas | 3,559 | 5,834 | 2,894 | 1,062 | 291 | 25 |
| No. and W. Central | 2,111 | 1,910 | 460 | 3 | 0 | 0 |
| West | 581 | 1,286 | 916 | 329 | 137 | 12 |
| Panhandle | 45 | 904 | 3 | 4 | 2 | 1 |
| Eastern | 71 | 759 | 190 | 82 | 10 | 2 |
| Gulf Coast | 200 | 499 | 701 | 459 | 114 | 7 |
| Southwest | 551 | 476 | 624 | 185 | 28 | 3 |
| Utah | 4 | 29 | 9 | 5 | 1 | 1 |
| Wyoming | 69 | 299 | 142 | 38 | 27 | 12 |
| Miscellaneous | 81 | 30 | 4 | 3 | 0 | 0 |
| Total | 15,149 | 15,913 | 4,939 | 1,996 | 904 | 137 |

### WILDCAT COMPLETIONS BY STATES

| State— | Comp. | Oil | Gas | Dry |
|---|---|---|---|---|
| Alabama | 14 | 0 | 0 | 14 |
| Arkansas | 78 | 5 | 1 | 72 |
| California | 487 | 33 | 8 | 446 |
| Colorado | 48 | 2 | 1 | 45 |
| Florida | 19 | 1 | 0 | 18 |
| Georgia | 6 | 0 | 0 | 6 |
| Illinois | 724 | 98 | 3 | 623 |
| Indiana | 471 | 62 | 7 | 402 |
| Kansas | 522 | 89 | 9 | 424 |
| Kentucky | 169 | 30 | 2 | 137 |
| Louisiana | 281 | 74 | 5 | 202 |
| Northern | 106 | 9 | 0 | 97 |
| Southern | 175 | 65 | 5 | 105 |
| Michigan | 344 | 28 | 3 | 313 |
| Mississippi | 115 | 8 | 1 | 106 |
| Missouri | 13 | 0 | 0 | 13 |
| Montana | 45 | 6 | 2 | 37 |
| Nebraska | 18 | 3 | 0 | 15 |
| New Mexico | 74 | 14 | 3 | 57 |
| New York | 0 | 0 | 0 | 0 |
| Ohio | 37 | 2 | 2 | 33 |
| Oklahoma | 804 | 163 | 18 | 623 |
| Pennsylvania | 8 | 0 | 4 | 2 |
| Tennessee | 29 | 5 | 0 | 24 |
| Texas | 2,791 | 440 | 112 | 2,239 |
| North Central (Dist. 9) | 475 | 83 | 6 | 386 |
| West Central (Dist. 7-B) | 592 | 93 | 15 | 484 |
| West (Dist. 7-C & 8) | 343 | 63 | 6 | 274 |
| Panhandle (Dist. 10) | 19 | 1 | 1 | 17 |
| Eastern (Dist. 5, 6, & 6-P) | 186 | 17 | 4 | 165 |
| Gulf Coast (Dist. 2 & 3) | 531 | 109 | 46 | 376 |
| Southwest (Dist. 1 & 4) | 645 | 74 | 34 | 537 |
| Utah | 19 | 1 | 0 | 18 |
| West Virginia | 24 | 1 | 12 | 11 |
| Wyoming | 131 | 21 | 1 | 109 |
| Miscellaneous | 25 | 0 | 2 | 23 |
| Total 1949 | 7,294 | 1,086 | 196 | 6,012 |
| Total 1948 | 6,877 | 1,029 | 246 | 5,602 |

### DEVELOPMENT COMPLETIONS BY STATES

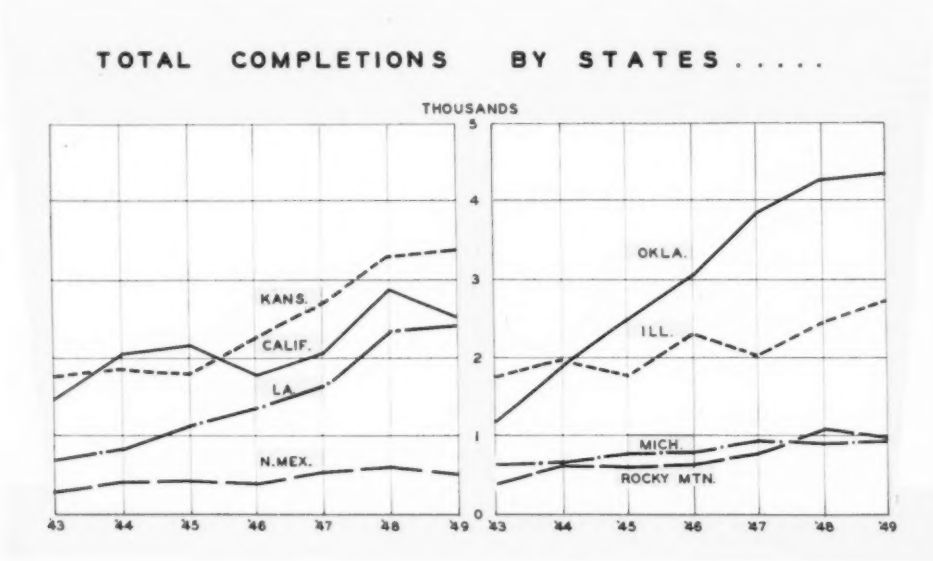
| State— | Comp. | Oil | Gas | Dry* |
|---|---|---|---|---|
| Alabama | 5 | 4 | 0 | 1 |
| Arkansas | 244 | 166 | 2 | 76 |
| California | 2,025 | 1,881 | 32 | 112 |
| Colorado | 34 | 19 | 3 | 12 |
| Florida | 5 | 3 | 0 | 2 |
| Georgia | 0 | 0 | 0 | 0 |
| Illinois | 1,987 | 1,294 | 3 | 690 |
| Indiana | 808 | 459 | 23 | 326 |
| Kansas | 2,865 | 1,594 | 410 | 861 |
| Kentucky | 878 | 418 | 191 | 269 |
| Louisiana | 2,090 | 1,450 | 206 | 434 |
| Northern | 1,342 | 918 | 192 | 232 |
| Southern | 748 | 532 | 14 | 202 |
| Michigan | 651 | 398 | 20 | 233 |
| Mississippi | 219 | 153 | 4 | 62 |
| Missouri | 9 | 2 | 6 | 1 |
| Montana | 234 | 132 | 52 | 50 |
| Nebraska | 9 | 7 | 0 | 2 |
| New Mexico | 427 | 320 | 50 | 57 |
| New York | 882 | 446 | 0 | 436 |
| Ohio | 1,047 | 347 | 306 | 394 |
| Oklahoma | 3,548 | 2,320 | 195 | 1,033 |
| Pennsylvania | 1,914 | 956 | 211 | 747 |
| Tennessee | 6 | 3 | 0 | 3 |
| Texas | 10,874 | 8,173 | 634 | 2,067 |
| North Central (Dist. 9) | 2,096 | 1,417 | 3 | 676 |
| West Central (Dist. 7-B) | 1,321 | 849 | 28 | 444 |
| West (Dist. 7-C & 8) | 2,918 | 2,725 | 18 | 175 |
| Panhandle (Dist. 10) | 940 | 579 | 309 | 52 |
| Eastern (Dist. 5, 6, & 6-P) | 928 | 775 | 46 | 107 |
| Gulf Coast (Dist. 2 & 3) | 1,449 | 994 | 136 | 319 |
| Southwest (Dist. 1 & 4) | 1,222 | 834 | 94 | 294 |
| Utah | 30 | 24 | 1 | 5 |
| West Virginia | 499 | 86 | 332 | 76 |
| Wyoming | 456 | 301 | 7 | 148 |
| Miscellaneous | 3 | 0 | 3 | 0 |
| Total 1949 | 31,744 | 20,956 | 2,691 | 8,097 |
| Total 1948 | 32,901 | 21,556 | 2,651 | 8,694 |

*Includes service wells.

total; Oklahoma was second with 11.1 per cent; Louisiana was next with 9 per cent; Kansas ranked fourth with 7.7 per cent; California was in fifth place with 7.5 per cent; Illinois ran sixth with 4.6 per cent.

### Tempo of Activity

The year started off with the usual high level of completions that reflected the high level of wells started just before the end of the previous year in



### SERVICE WELL COMPLETIONS
(By months)

| | Pennsylvania | New York | Other states | Total U. S. |
|---|---|---|---|---|
| January | 88 | 69 | 16 | 173 |
| February | 83 | 56 | 12 | 151 |
| March | 66 | 40 | 13 | 119 |
| April | 65 | 35 | 9 | 109 |
| May | 49 | 17 | 17 | 83 |
| June | 63 | 17 | 29 | 109 |
| July | 37 | 32 | 22 | 91 |
| August | 58 | 37 | 34 | 129 |
| September | 52 | 29 | 33 | 114 |
| October | 54 | 29 | 28 | 111 |
| November | 45 | 40 | 15 | 100 |
| December | 37 | 35 | 21 | 93 |
| Total 1949 | 687 | 436 | 249 | 1,382 |

### DISTILLATE WELL COMPLETIONS
(By months)

| | Texas | Louisiana | Other states | Total U. S. |
|---|---|---|---|---|
| January | 11 | 11 | 7 | 29 |
| February | 10 | 9 | 4 | 23 |
| March | 11 | 16 | 5 | 32 |
| April | 18 | 9 | 3 | 30 |
| May | 12 | 7 | 4 | 23 |
| June | 16 | 18 | 1 | 35 |
| July | 11 | 6 | 3 | 20 |
| August | 11 | 11 | 4 | 26 |
| September | 14 | 14 | 7 | 35 |
| October | 7 | 12 | 7 | 26 |
| November | 10 | 12 | 6 | 28 |
| December | 20 | 7 | 5 | 32 |
| Total 1949 | 151 | 132 | 58 | 339 |

order to meet various commitments. Then the usual winter slump set in, followed by a spring pickup. From April through October, completions held a fairly steady rate; then November and December climbed, reflecting the rapid increase in drilling contracts let the last quarter of the year.

### TOTAL COMPLETIONS BY MONTHS

| | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 3,187 | 1,804 | 204 | 1,179 | 11,349,694 |
| February | 2,479 | 1,414 | 172 | 893 | 9,002,422 |
| March | 3,123 | 1,816 | 212 | 1,095 | 11,721,795 |
| April | 3,095 | 1,753 | 246 | 1,096 | 11,346,215 |
| May | 3,198 | 1,805 | 238 | 1,155 | 11,389,613 |
| June | 3,712 | 2,133 | 240 | 1,339 | 13,418,510 |
| July | 3,264 | 1,803 | 253 | 1,208 | 11,229,404 |
| August | 3,350 | 1,847 | 245 | 1,258 | 11,482,781 |
| September | 3,552 | 1,984 | 298 | 1,270 | 12,656,833 |
| October | 3,273 | 1,826 | 261 | 1,186 | 10,908,011 |
| November | 3,490* | 1,980 | 264 | 1,246 | 11,742,450 |
| December | 3,315 | 1,877 | 254 | 1,184 | 11,755,236 |
| Total 1949 | 39,038 | 22,042 | 2,887 | 14,109 | 138,002,964 |

### WILDCAT COMPLETIONS BY MONTHS

| | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 587 | 90 | 14 | 483 | 2,431,344 |
| February | 451 | 65 | 10 | 376 | 1,840,261 |
| March | 581 | 98 | 20 | 463 | 2,453,855 |
| April | 571 | 98 | 17 | 456 | 2,451,562 |
| May | 641 | 88 | 13 | 540 | 2,557,608 |
| June | 712 | 108 | 23 | 581 | 2,966,345 |
| July | 626 | 88 | 19 | 519 | 2,363,934 |
| August | 669 | 104 | 15 | 550 | 2,624,064 |
| September | 689 | 98 | 26 | 565 | 2,757,009 |
| October | 598 | 92 | 12 | 494 | 2,262,077 |
| November | 600 | 75 | 17 | 508 | 2,220,606 |
| December | 569 | 82 | 10 | 477 | 2,354,483 |
| Total 1949 | 7,294 | 1,086 | 196 | 6,012 | 29,283,148 |

### DEVELOPMENT COMPLETIONS BY MONTHS

| | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 2,600 | 1,714 | 190 | 696 | 8,918,350 |
| February | 2,028 | 1,349 | 162 | 517 | 7,162,161 |
| March | 2,542 | 1,718 | 192 | 632 | 9,267,940 |
| April | 2,524 | 1,655 | 229 | 640 | 8,894,653 |
| May | 2,557 | 1,717 | 225 | 615 | 8,832,005 |
| June | 3,000 | 2,025 | 217 | 758 | 10,452,165 |
| July | 2,638 | 1,715 | 234 | 689 | 8,865,470 |
| August | 2,681 | 1,743 | 230 | 708 | 8,858,717 |
| September | 2,863 | 1,886 | 272 | 705 | 9,899,824 |
| October | 2,675 | 1,734 | 249 | 692 | 8,645,934 |
| November | 2,890 | 1,905 | 247 | 738 | 9,521,844 |
| December | 2,746 | 1,795 | 244 | 707 | 9,400,753 |
| Total | 31,744 | 20,956 | 2,691 | 8,097 | 108,719,816 |

## *Total Footage Drilled in United States by Years*

(Thousands of feet)

| | 1942 | 1943 | 1944 | 1945 | 1946 | 1947 | 1948 | 1949 |
|---|---|---|---|---|---|---|---|---|
| Arkansas | 1,033 | 1,095 | 1,190 | 828 | 728 | 1,409 | 1,270 | 1,283 |
| California | 3,359 | 4,793 | 7,527 | 8,671 | 7,509 | 8,764 | 10,579 | 10,443 |
| Colorado | 123 | 83 | 207 | 352 | 1,063 | 1,151 | 1,228 | 359 |
| Illinois | 5,027 | 4,668 | 4,958 | 4,565 | 5,925 | 5,251 | 6,386 | 6,362 |
| Indiana | 736 | 428 | 581 | 500 | 1,071 | 1,206 | 2,023 | 2,357 |
| Kansas | 4,795 | 5,808 | 6,194 | 5,877 | 6,556 | 8,690 | 10,634 | 10,715 |
| Kentucky | 417 | 1,182 | 1,863 | 1,275 | 1,175 | 1,194 | 1,515 | 1,853 |
| Louisiana | 5,679 | 4,337 | 5,723 | 7,774 | 8,464 | 8,709 | 10,934 | 12,477 |
| Northern | 1,827 | 1,199 | 1,408 | 2,117 | 3,175 | 2,912 | 4,128 | 4,453 |
| Southern | 3,852 | 3,138 | 4,315 | 5,657 | 5,289 | 5,797 | 6,806 | 8,024 |
| Michigan | 1,673 | 1,548 | 1,620 | 1,963 | 1,749 | 1,935 | 1,983 | 2,209 |
| Mississippi | 377 | 635 | 776 | 2,403 | 1,971 | 4,131 | 3,312 | 2,388 |
| Montana | 728 | 533 | 946 | 754 | 661 | 630 | 819 | 650 |
| New Mexico | 1,148 | 770 | 1,322 | 1,508 | 1,624 | 2,512 | 2,602 | 2,419 |
| New York, Pennsylvania, West Virginia | 6,923 | 9,071 | 10,038 | 10,225 | 9,985 | 9,702 | 9,293 | 5,835 |
| Ohio | 2,875 | 2,493 | 2,730 | 2,689 | 3,402 | 3,913 | 3,498 | 2,286 |
| Oklahoma | 3,934 | 3,945 | 7,172 | 10,048 | 9,771 | 12,151 | 15,515 | 15,339 |
| Texas | 21,064 | 19,030 | 26,621 | 32,495 | 34,352 | 41,029 | 52,746 | 57,462 |
| North Central | 3,088 | 4,097 | 4,395 | 5,864 | 7,065 | 8,544 | 11,312 | 12,831 |
| West | 5,434 | 4,195 | 7,572 | 8,497 | 8,815 | 10,809 | 15,428 | 16,398 |
| Panhandle | 1,013 | 546 | 984 | 1,686 | 943 | 1,593 | 2,053 | 3,015 |
| Eastern | 2,046 | 1,769 | 1,867 | 2,504 | 3,792 | 3,070 | 3,383 | 4,992 |
| Gulf Coast | 4,410 | 3,618 | 9,491 | 11,690 | 11,599 | 9,559 | 11,995 | 11,880 |
| Southwest | 5,073 | 4,805 | 2,312 | 2,254 | 2,138 | 7,454 | 8,575 | 8,346 |
| Wyoming | 793 | 557 | 907 | 967 | 716 | 1,203 | 2,501 | 2,803 |
| Miscellaneous | 105 | 302 | 371 | 346 | 334 | 481 | 554 | 763 |
| Total United States | 60,789 | 61,278 | 80,746 | 93,240 | 97,056 | 114,061 | 137,392 | 138,003 |

# Exploration Drilling Reaches New All-Time High Records

**by Polly DeArmond**

ALL previous records for wildcat drilling were broken by the industry during 1949. The total number of exploratory wells was 7,294, an increase of 4.6 per cent over 1948, the previous all-time record year. The wildcat footage drilled in these wells also topped 1948, but by a very small margin, 29,283,000 ft. for 1949 compared to 29,195,000 ft. in 1948.

Eleven states accounted for over 93 per cent of both wells and footage. Important data on these 11 states are shown in Tables 1 and 2. Texas, of course, was far in the lead, both in number of test wells drilled and in total footage. The ratio of successes was also good in Texas, 19.8 per cent of the tests finding either oil or gas.

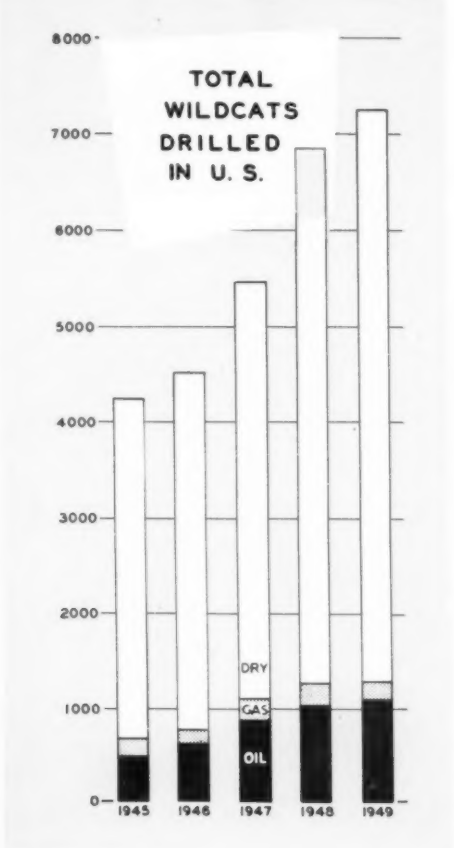



TABLE 1—U. S. EXPLORATION RESULTS IN 1949

| State— | Total wildcats | Per cent— Oil | Gas | Dry |
|---|---|---|---|---|
| Texas | 2,791 | 15.8 | 4.0 | 80.2 |
| Oklahoma | 804 | 20.3 | 2.2 | 77.5 |
| Illinois | 724 | 13.5 | 0.4 | 86.1 |
| Kansas | 522 | 17.1 | 1.7 | 81.2 |
| California | 487 | 6.8 | 1.6 | 91.6 |
| Indiana | 471 | 13.2 | 1.5 | 85.3 |
| Michigan | 344 | 8.1 | 0.9 | 91.0 |
| Louisiana | 281 | 26.3 | 1.8 | 71.9 |
| Kentucky | 169 | 17.8 | 1.1 | 81.1 |
| Wyoming | 131 | 16.1 | 0.7 | 83.2 |
| Mississippi | 115 | 6.1 | 0.7 | 92.2 |
| All others | 455 | 8.8 | 5.9 | 85.3 |
| Total U. S. | 7,294 | 14.9 | 2.7 | 82.4 |
| Total 1948 | 6,877 | 15.0 | 3.6 | 81.4 |
| Total 1947 | 5,461 | 15.8 | 4.5 | 79.7 |
| Total 1946 | 4,518 | 14.1 | 2.8 | 83.1 |

TABLE 2—WILDCAT FOOTAGE DRILLED IN STATES WITH GREATEST WILDCAT ACTIVITY
(Thousands of feet)

| State— | Wildcat footage 1949 | 1948 | Difference |
|---|---|---|---|
| Texas | 13,108 | 12,381 | +727 |
| Oklahoma | 3,216 | 3,632 | —416 |
| Louisiana | 2,335 | 2,600 | —265 |
| California | 1,899 | 2,244 | —345 |
| Kansas | 1,782 | 1,821 | — 39 |
| Illinois | 1,584 | 1,582 | + 2 |
| Indiana | 904 | 658 | +246 |
| Mississippi | 810 | 802 | + 8 |
| Michigan | 747 | 699 | + 48 |
| Wyoming | 692 | 447 | +245 |
| Kentucky | 322 | 270 | + 52 |
| All others | 1,884 | 2,059 | —175 |
| Total United States | 29,283 | 29,195 | + 88 |

One difference between 1949 and the previous year stands out rather sharply. That is the trend toward fewer deep tests and more medium to shallow wildcats. This is indicated by the fact that although the wildcat wells increased nearly 5 per cent in numbers, there was very little difference in total wildcat footage drilled. This may be due to the fact that the large operators drilled a smaller proportion of the total wildcats in 1949 than in previous years.

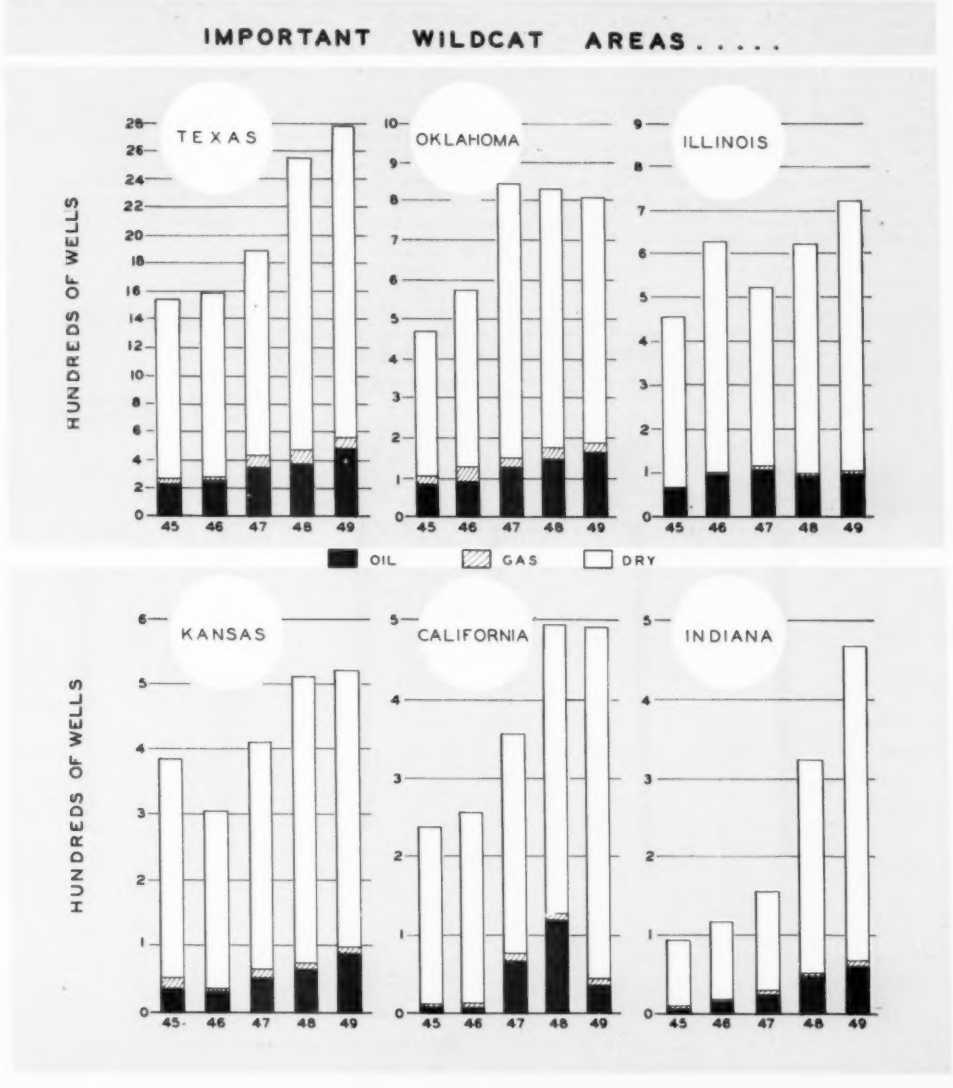
As a general rule, with exceptions of course, the

smaller operators leave the drilling of very deep wildcats to the larger companies. A small operator is not usually willing to risk so much money on one wildcat. The effect of this is particularly noticeable in Oklahoma and California, where comparatively small drops in numbers of wildcats are accompanied by very substantial drops in wildcat footage drilled.

The ratio of success in wildcatting for the country as a whole was off a little compared to 1948, off quite a bit compared to 1947, but higher than in 1946. The comparative figures are 17.6 per cent oil or gas for 1949; 18.6 per cent for 1948; 20.3 per cent for 1947; and 16.9 per cent for 1946. Oddly enough, the greater portion of this variation is due to the percentage of wildcats completed as gas wells. The low percentage for gas wildcat completions is 2.7 in 1949, against a high of 4.5 per cent in 1947. Oil successes were 14.9 per cent in 1949, against a low of 14.1 in 1946, and a high of 15.8 in 1947.

The outstanding feature of the year, of course, was the successful expansion in Scurry County, Texas, where two moderately important looking 1948 discoveries were expanded into what is already the third largest oil field ever found in the United States.

Never before in oil history of the United States has such a huge field been recognized as a true giant in such a short time. Not quite 9 months elapsed between the completion of the first discovery well in July 1948, and the first public recognition of its potentialities. The Oil and Gas Journal, March 10, 1949, on page 135, under the heading "West Texans Say 'Watch Scurry County,'" gave the vast majority of oil men their first inkling of its real potentialities.



# 20,000-Ft. Goal Reached; Also New Producing Depth Record Set

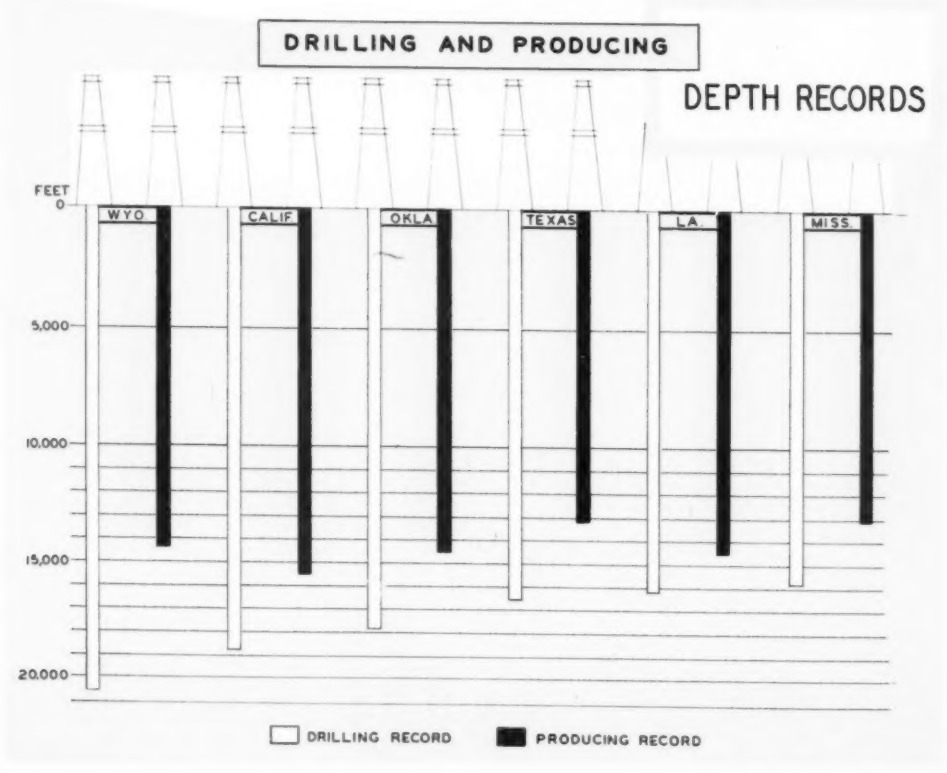
**by Polly DeArmond**

THE industry's long-sought goal of a 20,000-ft. well was realized in 1949 when Superior Oil Co. broke its own world's depth record, drilling the 1 Unit, Sublette County, Wyoming, to 20,521 ft. This bested the previous year's record-holder, the same company's 51-11 Weller, Caddo County, Oklahoma, by 2,698 ft. It also exceeded by 1,787 ft. a still newer record set early in 1949 by Superior's 1 Limoneira in Ventura County, California.

A new producing depth record was also established during the past year. Standard Oil Co. of California's 5 Mushrush, a Wasco field well, Kern County, California, found oil at 15,530 ft., 1,223 ft. deeper than 1948's record, held by Pure Oil Co. 1 Unit, Natrona County, Wyoming. Although recovery of gas as low as 14,510 ft. was reported for Denver Producing & Refining Co. 1 School Land, Cogar field discovery in Caddo County, Oklahoma, the second deepest oil production was tapped in South Louisiana by Humble Oil & Refining Co. 1 State Lease 1452, Lake Raccouri, Lafourche Parish.

Other new total depth records for their areas were reported in Alabama, Kentucky, Montana, Pennsylvania, Southeastern New Mexico, Texas Panhandle, and Utah.

New deep producing levels were established in Nebraska, Oklahoma, Southern Louisiana, Southern Texas, Southeastern New Mexico, Texas Panhandle, Utah, and West Texas.



## United States Drilling Depth Records by States

| State— | Well and location; county— | Result | Year comp. | Deepest formation | Total footage |
|---|---|---|---|---|---|
| Wyoming | Superior 1 Unit, 27-27n-103w; Sublette | Dry | 1949 | U. Cretaceous | 20,321 |
| California | Superior 1 Limoneira, 9-2n-22w; Ventura | Dry | 1949 | U. Miocene | 18,734 |
| Oklahoma | Superior 51-11 Weller, 11-8n-12w; Caddo | Dry | 1947 | Pennsylvanian | 17,823 |
| Upper Gulf Texas | Phillips 3 Schoeps, Millican Salt Dome; Brazos | Dry | 1945 | Cretaceous | 16,655 |
| East Texas | Humble 1 McWatters; Freestone | Oil | 1949 | Smackover | 16,347 |
| South Louisiana | Texas 4 State-Barataria Bay, Queen Bess Island; Jeff Davis | Dry | 1948 | Miocene | 16,106 |
| Lower Gulf Texas | Texas 6 Yturria L. & L. Co., Raymondville; Willacy | Dry | 1947 | | 16,006 |
| Mississippi | Superior 1 Bradford, 1-3n-13w, Forrest | Dry | 1946 | | 15,730 |
| Alabama | Humble 2 Williams, 21-6n-4w; Washington | Dry | 1949 | | 15,659 |
| South Texas | Quintana 3-D So. Tex. Syndicate; McMullen | Dry | 1945 | Cretaceous | 15,301 |
| West Texas | Phillips 1 Price, 11-101-TCRR; Pecos | Dry | 1945 | Ellenburger | 15,279 |
| Florida | Gulf 1 State; Monroe | Dry | 1947 | | 15,155 |
| Southeast New Mexico | Humble 1 Federal-Wiggs, 31-24s-27e; Eddy | Drlg. | | | 14,545 |
| Panhandle Texas | Gulf 1-E Porter "A," 413-43-H&TC; Lipscomb | Dry | 1948 | | 14,278 |
| South Central Texas | Stanolind 1 Henry; McMullen | Dry | 1948 | | 14,046 |
| Utah | Equity & Pacific Western 1 Unit, 33-21s-21e; Grand | Dry | 1949 | Pennsylvanian | 13,767 |
| North Louisiana | Union 1 McDonald Unit; Claiborne | Oil | 1942 | Smackover | 12,952 |
| Colorado | Texas & California 20 Unit, 34-3n-9w; Rio Blanco | Dry | 1946 | Madison | 12,702 |
| East Texas Border | Humble 1 Pickering Lumber; Shelby | | 1946 | Jurassic | 12,221 |
| Montana | Shell 1 Crow Tribal, 36-9s-37e; Big Horn | Dry | 1945 | Charles | 11,519 |
| Arkansas | Stanolind 1 Bodcaw, 29-19s-23w; Lafayette | Dry | 1948 | Smackover | 11,434 |
| Michigan | Ohio & Pure 1 Reinhardt, 35-22n-2e; Ogemaw | Dry | 1948 | Cambro-Ord. | 11,012 |
| Washington | Standard of California 1 Alderwood; Snohomish | Dry | 1947 | | 11,002 |
| Pennsylvania | Manufacturers Heat & Light 8 Barton Est.; Butler | Dry | 1949 | | 10,312 |
| North Dakota | California 1 Kamp, 3-154n-96w; Williams | Dry | 1938 | Devonian | 10,281 |
| North Carolina | Standard of N. J. 1 Hatteras Light; Dare | Dry | 1946 | Granite | 10,054 |
| West Virginia | Hope Nat. Gas 8517 Gribble, Grant dist.; Harrison | Dry | 1941 | Queenston | 10,018 |
| Northwest New Mexico | Southern Union 9 Barker Creek, 21-32n-14w; San Juan | Gas | 1945 | Pennsylvanian | 9,458 |
| Oregon | Texas 1 Cooper Mountain, 25-1s-2w; Washington | Dry | 1948 | | 9,263 |
| North Central Texas | Standard of Texas 2 Beasley, McKerlev Sur.; Cooke | Oil | 1946 | | 9,158 |
| New York | New Penn. 1 Harrington, Woodhull Twp.; Steuben | Gas | 1944 | Oswego | 8,625 |
| Kansas | Stanolind 1 Feathers, 15-35s-33w; Seward | Gas | 1947 | Crystalline | 8,243 |
| Maryland | Snee 1 Scharizer; Garrett | Dry | 1941 | Helderberg | 8,165 |
| South Dakota | Northern Ordnance 1 Harding School Land; Harding | Dry | 1943 | St. Peter | 8,000 |
| Ohio | Ohio 1-C Knowlton, Sec. 10, Indep. Twp.; Washington | Dry | 1933 | Silurian | 7,889 |
| Georgia | Warren & Robinson 1 Chandler dist. 26; Early | Dry | 1944 | Granite | 7,320 |
| Illinois | Pure 3 Billington, 26-1n-7e; Wayne | Dry | 1940 | St. Peter | 7,207 |
| Nebraska | Union of California 1 Agate; Sioux | Dry | 1938 | Pennsylvanian | 6,846 |
| Kentucky | Pure & Ashland 1-A Walker, 22-N-24; Webster | Dry | 1949 | Knox | 6,586 |
| Indiana | Continental 1 Cooper Est., 13-3s-14w; Gibson | Dry | 1947 | Trenton | 6,405 |
| Tennessee | California 1 Beeler; Giles | Dry | 1947 | Granite | 5,750 |
| Iowa | Oil Development 1 Wilson; Page | | 1930 | Cambrian | 5,305 |
| New Jersey | W. & K. 1 Mathews, Jackson Mills; Ocean | Dry | 1929 | Wissahickon | 5,022 |
| Missouri | Strake 1 Russell; Pemiscot | Dry | 1941 | Cambrian | 4,740 |
| South Carolina | Parris Island water supply well; Beaufort | Dry | 1940 | Crystalline | 3,454 |

## United States Producing Depth Records by States

| State— | Well and location; county— | Result | Year comp. | Deepest formation | Total footage |
|---|---|---|---|---|---|
| Alabama | Hunt 4 Land, Gilbertown field; Choctaw | Oil | 1945 | Eutaw | 3,624 |
| Arkansas | Tide Water-Seaboard 1 Bandlow, Patton field; Lafayette | Oil | 1944 | Smackover | 9,330 |
| California | Standard of California 5 Mushrush, 7-27s-24e, Wasco field; Kern | Oil | 1949 | Eocene | 15,530 |
| Colorado | Texas & California 10 Unit, 26-3n-94w; Rio Blanco | Oil | 1941 | Morrison | 7,198 |
| East Texas | Humble 1 Curtis, Larissa field; Cherokee | Oil | 1942 | Pettit | 10,312 |
| East Texas Border | Magnolia 1 Orr, Fowler Sur.; Marion | Oil | 1946 | Travis Peak | 7,577 |
| Florida | Humble 1 Gulf Coast, Sunniland field; Collier | Oil | 1943 | Glen Rose | *11,626 |
| Illinois | Kingwood 24-A Shanafelt, 20-2n-2e; Marion | Oil | 1943 | Trenton | 4,657 |
| Indiana | Lewis 1 Hill, 35-3s-14w; Posey | Oil | 1939 | McClosky | 3,144 |
| Kansas | Olson 3 Morrison, Morrison field; Clark | Oil† | 1936 | Viola | 6,481 |
| Kentucky | United Carbon 1 Howe; Pike | Gas | 1932 | Devonian | 5,170 |
| Lower Gulf Texas | Sun 1 Thompson, W. Goliad field; Goliad | Oil | 1945 | Wilcox | 11,149 |
| Maryland | Cumberland and Allegheny S-424 Beachy, Ryans Glade 8 dist.; Garrett | Gas | 1949 | Lime and chert | 4,456 |
| Michigan | Michigan Gulf 1 Bateson, Kawkawlin field; Bay | Oil† | 1946 | Salina | 7,850 |
| Mississippi | Gulf 1 Majors, 28-6n-11w; Jones | Oil | 1948 | Comanche | 13,082 |
| Missouri | Cities Service 1 Cook, Tarkio field; Atchison | Oil | 1940 | Bartlesville | 1,444 |
| Montana | Stanolind 1 Laerr "B," 29-9s-23e; Carbon | Oil | 1948 | Madison | 6,860 |
| Nebraska | Ohio 3 Knievel, 2-15n-49w, Gurley field; Cheyenne | Oil | 1949 | Third Dakota | 4,553 |
| New York | Kane 1 Lewis, West Union Twp.; Steuben | Gas | 1942 | Oriskany | 5,228 |
| North Central Texas | Stanolind of Texas 2 Beasley, McKerley Sur.; Cooke | Oil | 1946 | Ellenburger | 8,940 |
| North Louisiana | James & Co. 2 Williamson, 28-23n-8w; Claiborne | Oil | 1948 | Smackover | 10,789 |
| Northwest New Mexico | Southern Union 9 Barker Creek, 21-32n-14w; San Juan | Gas | 1945 | Pennsylvanian | 9,468 |
| Ohio | East Ohio 1 Phillips, Sec. 23, Washington Twp.; Harrison | Gas | 1941 | Silurian | *5,899 |
| Oklahoma | Denver 1 School Land, 16-10n-9w, Cogar field; Caddo | Gas | 1948 | Hunton | 14,510 |
| Panhandle Texas | Sinclair 1 Lips, 135-C-G&M Sur.; Roberts | Oil | 1949 | Mississippian | 9,050 |
| Pennsylvania | American Locomotive 5 Steiner, Unity Twp.; Westmoreland | Gas | 1946 | Oriskany | 8,014 |
| South Central Texas | Quintana 1 Muil, Muil field; Atascosa | Oil | 1946 | Edwards | 9,019 |
| South Louisiana | Humble 1 State Lease 1452, Lake Raccourl; Lafourche | Cond. | 1949 | | 14,467 |
| South Texas | Plymouth 1 Darby, Jourdanton field; Atascosa | Oil | 1949 | | 7,410 |
| Southeast New Mexico | Amerada 1 Rose, 35-16s-38e; Lea | Oil | 1949 | Devonian | 12,596 |
| Tennessee | York 2 Print Huff; Pickett | Oil | 1947 | Knox | 1,702 |
| Upper Gulf Texas | Humble 1 So. Mayes Unit; Chambers | Cond. | 1948 | Lower Frio | 12,026 |
| Utah | California 1 Upper Valley, 12-36s-1e; Garfield | Oil | 1949 | Hermosa | 8,857 |
| West Texas | Texas 1 Scharbauer, 20-40-T2S, T&P; Midland | Oil | 1949 | Ellenburger | 13,150 |
| West Virginia | Ohio 1 Kendall et al, Dry Fork dist.; Tucker | Gas | 1946 | Oriskany | *8,410 |
| Wyoming | Pure 1 Unit, 11-33n-84w; Natrona | Oil | 1948 | Frontier | 14,307 |

*Total depth figure. †Now abandoned.

# Two Per Cent of Fields Account For 60 Per Cent of Oil Found

**by Charles J. Deegan**

TWO per cent or fewer of all the oil fields ever found in the United States account for slightly over 60 per cent of the total oil found to date in this country. Total oil found to date means all the past production plus the proven reserves of all the known fields. Dividing the total oil into past and future changes the figures very little. These few fields have accounted for 58.8 per cent of all the oil produced to January 1, 1950. As of January 1, 1950, these fields contain 63.3 per cent of the proven reserves.

Is there anything particularly important to oil men in this particular fact? Trends in thinking in the past year or so seem to indicate there is. More and more executives and exploration scientists are reaching the conclusion that it means quite a bit. More and more executives are beginning to think that their oil finding, development, and producing costs could be reduced substantially if they understood more about why major oil fields are where they are. More and more exploration scientists are beginning to feel that the science of petroleum geology would gain substantially if we had more knowledge of what combination of geological conditions seems to be common to major fields.

The executives and scientists who feel this way still include only a minority, but their number is growing rapidly. What is more important than mere numbers, this group includes many of the more prominent ones, men whose influence on the thinking of others is considerable.

### Cost and Profit Angles

Looking at cost and profit angles, these executives are figuring that lease development costs are usually much lower per barrel in major fields than they are in other fields. They say it costs about as much to drill wells and almost as much for lease tankage and other production facilities on a lease in a mediocre to poor field as it does on a lease in a major field. But the average well in a major field will produce many more barrels of oil. That means lower costs and higher profits per barrel at any given price.

The exploration scientists in executive positions say that they have to consider the law of averages. If they get one oil discovery out of five wildcats in virgin territory, they have a good record. But if only 1 out of 50 oil discoveries is a major strike, they must reconsider the law of averages. Their ultimate objective is not to find oil, but to make a profit for their company or themselves, if they have an interest in the prospects.

From the strictly scientific standpoint, oil is simply another mineral found in the earth. In the case of most other minerals, it is rather well recognized that the really rich accumulations are rare. It now appears that this is also true of oil. Some geologists say that this similarity has not been so well recognized among petroleum geologists, and that therefore proportionately not as much study

**TABLE 1—TOTAL OIL FOUND TO JANUARY 1, 1950—MAJOR FIELDS VS. ALL FIELDS**
**(Millions of barrels)**

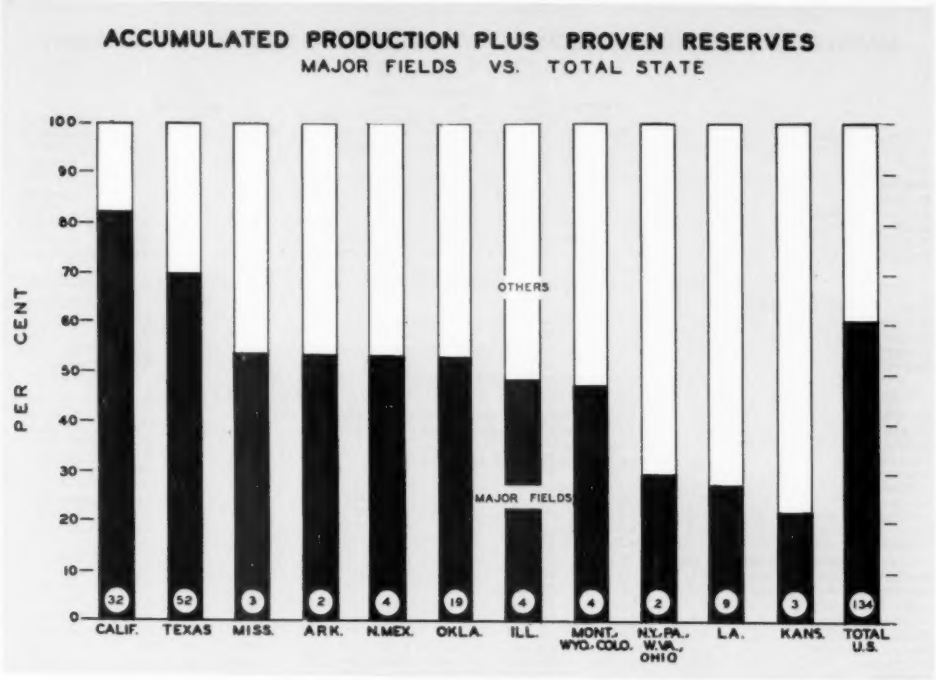
| State— | No. major* fields | Ultimate production† Major fields | All fields | % by major fields |
|---|---|---|---|---|
| Texas | 52 | 19,312 | 27,711 | 69.7 |
| California | 32 | 10,077 | 12,289 | 82.0 |
| Oklahoma | 19 | 3,852 | 7,258 | 53.1 |
| Louisiana | 9 | 1,275 | 4,620 | 27.6 |
| Mont.-Wyo.-Colo. | 4 | 1,045 | 2,218 | 47.1 |
| Illinois | 4 | 895 | 1,848 | 48.4 |
| N.Y.-Pa.-W. Va.-Ohio | 2 | 770 | 2,574 | 29.9 |
| New Mexico | 4 | 640 | 1,200 | 53.3 |
| Arkansas | 2 | 580 | 1,086 | 53.4 |
| Kansas | 3 | 555 | 2,654 | 20.9 |
| Mississippi | 3 | 380 | 710 | 53.5 |
| All other states | 0 | 0 | 831 | 0 |
| Total U. S. | 134 | 39,381 | 64,999 | 60.6 |

*Fields with estimated ultimate production of 100 million barrels or more. †Accumulated production to January 1, 1950, plus estimated proven reserves.

**TABLE 2—COMPARISON MAJOR FIELDS VS. TOTAL STATE PRODUCTION* DURING 1949**
**(Millions of barrels)**

| State— | No. major fields | Prod.† major fields | Prod. total state | % from major fields |
|---|---|---|---|---|
| Texas | 52 | 427 | 768 | 55.6 |
| California | 32 | 243 | 338 | 72.0 |
| Oklahoma | 19 | 69 | 150 | 45.8 |
| Louisiana | 9 | 38 | 203 | 19.0 |
| Mont.-Wyo.-Colo. | 4 | 33 | 80 | 41.6 |
| New Mexico | 4 | 19 | 48 | 39.7 |
| Kansas | 3 | 17 | 100 | 16.5 |
| Mississippi | 3 | 15 | 39 | 38.6 |
| Illinois | 4 | 14 | 64 | 21.1 |
| N.Y.-Pa.-W.Va.-Ohio | 2 | 13 | 22 | 60.2 |
| Arkansas | 2 | 8 | 30 | 27.2 |
| All others | 0 | | 36 | 0 |
| Total U. S. | 134 | 896 | 1,878 | 47.7 |

*Crude plus condensate. †Fields with estimated ultimate production of 100 million barrels or more.




has been devoted to the whys and wherefores of rich oil accumulations as has been given in the case of rich accumulations of other minerals.

As far as publicly available material in recent years is concerned, part of the discussion at the sedimentology symposium at the joint convention of exploration societies in St. Louis in 1949 did touch on the fringes of the subject. A partial analysis of some of this material will be found in "Gulf Coast Oil—Why Are These Fields Where They Are?" in The Oil and Gas Journal, May 19, 1949, page 190. The symposium paper has now been published in the December 1949 A.A.P.G. Bulletin, under the title "Sedimentary Facies in Gulf Coast," by S. W. Lowman. The illustrations shown in Figs. 7, 8, and 9 of the Lowman paper seem significant.

## Table 3—Major Fields* vs. Total United States Reserves and Production

(In thousands of barrels)

| State and field— | Year of first discovery | Est. ultimate prod. | Remaining reserves 1-1-50 | Cumulative prod. to 1-1-50 | Prod. 1949 | Prod. 1948 | Main pay sands (S) or lime (L) | Geologic age of main production |
|---|---|---|---|---|---|---|---|---|
| **CALIFORNIA:** | | | | | | | | |
| Buena Vista | 1909 | 520,000 | 142,024 | 377,976 | 13,962 | 16,596 | S | Plio. |
| Coalinga, East | 1900 | 340,000 | 68,728 | 271,272 | 5,616 | 6,733 | S | Plio.-Mio. |
| Coalinga, Nose | 1938 | 370,000 | 217,842 | 152,158 | 17,153 | 19,462 | S | Eocene |
| Coalinga, West | 1900 | 192,000 | 26,618 | 165,382 | 1,944 | 2,551 | S | Plio.-Mio. |
| Coles Levee, North | 1938 | 115,000 | 65,798 | 49,202 | 6,264 | 5,591 | S | Mio. |
| Elk Hills | 1919 | 475,000 | 272,861 | 202,139 | 2,921 | 2,118 | S | Plio.-Mio. |
| Kern Front | 1925 | 107,000 | 35,728 | 71,272 | 2,542 | 3,260 | S | Plio. |
| Kern River | 1899 | 353,000 | 47,065 | 305,935 | 3,598 | 4,502 | S | Plio. |
| Kettleman North Dome | 1928 | 465,000 | 103,052 | 361,948 | 11,740 | 12,832 | S | Mio.-Eocene |
| McKittrick-Cymric | 1887 | 185,000 | 68,560 | 116,440 | 3,815 | 7,533 | S | Plio. |
| Midway-Sunset | 1901 | 895,000 | 146,225 | 748,775 | 12,749 | 13,180 | S | Plio.-Mio. |
| Mount Poso | 1926 | 129,000 | 39,794 | 89,206 | 3,285 | 4,567 | S | Mio. |
| Paloma | 1939 | 106,000 | 80,835 | 25,165 | 6,108 | 6,260 | S | Miocene |
| Rio Bravo | 1937 | 100,000 | 48,697 | 51,303 | 3,962 | 4,429 | S | Mio. |
| South Cuyama | 1948 | 140,000 | 138,906 | 1,094 | 1,094 | | S | Miocene |
| Cat Canyon, West | 1908 | 103,000 | 61,654 | 41,346 | 5,071 | 5,702 | S | Plio.-Mio. |
| Elwood | 1927 | 115,000 | 29,311 | 85,689 | 2,681 | 2,681 | S | Mio.-Olig. |
| Orcutt | 1903 | 129,000 | 20,030 | 108,970 | 1,572 | 1,667 | S | Plio.-Mio. |
| Santa Maria Valley | 1934 | 185,000 | 87,788 | 97,212 | 5,693 | 7,269 | S | Mio. |
| Ventura Avenue | 1916 | 570,000 | 193,213 | 376,787 | 21,133 | 17,738 | S | Plio. |
| Brea Olinda | 1889 | 257,000 | 53,709 | 203,291 | 5,277 | 5,286 | S | Plio.-Mio. |
| Coyote, West | 1909 | 237,000 | 72,143 | 164,857 | 4,819 | 5,803 | S | Plio. |
| Dominguez | 1923 | 251,000 | 68,135 | 182,865 | 4,752 | 4,865 | S | Plio.-Mio. |
| Huntington Beach | 1920 | 617,000 | 178,731 | 438,269 | 21,116 | 20,821 | S | Plio.-Mio. |

(Continued on Next Page)

## MAJOR FIELDS* VS. TOTAL UNITED STATES RESERVES AND PRODUCTION (Continued)

(In thousands of barrels)

| State and field— | Year of first discovery | Est. ultimate prod. | Remaining reserves 1-1-50 | Cumulative prod. to 1-1-50 | Prod. 1949 | Prod. 1948 | Main pay sands (S) or lime (L) | Geologic age of main production |
|---|---|---|---|---|---|---|---|---|
| Inglewood | 1924 | 214,000 | 44,006 | 169,994 | 5,101 | 4,419 | S | Plio.-Mio. |
| Long Beach | 1921 | 825,000 | 81,960 | 743,040 | 8,356 | 8,159 | S | Plio.-Mio. |
| Montebello | 1917 | 177,000 | 23,655 | 153,345 | 2,359 | 2,467 | S | Plio.-Mio. |
| Richfield | 1919 | 132,000 | 20,027 | 111,973 | 2,354 | 2,272 | S | Plio. |
| Santa Fe Springs | 1919 | 590,000 | 61,774 | 528,226 | 5,340 | 5,512 | S | Plio.-Mio. |
| Seal Beach | 1926 | 158,000 | 39,752 | 118,248 | 4,390 | 4,150 | S | Plio.-Mio. |
| Torrance | 1922 | 155,000 | 26,823 | 128,177 | 2,792 | 2,862 | S | Mio. |
| Wilmington | 1935 | 870,000 | 409,120 | 460,880 | 43,655 | 48,317 | S | Plio.-Mio. |
| Subtotal | | 10,077,000 | 2,974,564 | 7,102,436 | 243,214 | 259,404 | | |
| ROCKY MOUNTAIN AREA: | | | | | | | | |
| Elk Basin (Wyo. and Mont.) | 1915 | 255,000 | 206,185 | 48,815 | 7,105 | 7,214 | S | Pa. |
| Lance Creek | 1918 | 105,000 | 21,270 | 83,730 | 2,822 | 3,272 | S | Jur.-Pa. |
| Rangely | 1902 | 285,000 | 228,338 | 56,662 | 19,549 | 13,867 | S | U. Cret.-Pa. |
| Salt Creek | 1908 | 400,000 | 64,533 | 335,467 | 3,899 | 4,646 | S | Cret.-Jur.-Pa. |
| Subtotal | | 1,045,000 | 520,326 | 524,674 | 33,375 | 28,999 | | |
| OKLAHOMA: | | | | | | | | |
| Avant | 1904 | 105,000 | 5,444 | 99,556 | 570 | 620 | S | Pa. |
| Bowlegs | 1926 | 150,000 | 19,690 | 130,310 | 1,176 | 1,265 | S | Pa.-Sil.-Dev.-Ord. |
| Burbank | 1920 | 265,000 | 36,676 | 228,324 | 2,338 | 2,419 | S | Pa. |
| Cement | 1917 | 100,000 | 43,972 | 56,028 | 4,207 | 4,566 | S | Perm.-Pa. |
| Cushing | 1912 | 425,000 | 42,613 | 382,387 | 2,726 | 2,869 | S-L | Pa.-Ord. |
| Earlsboro | 1924 | 140,000 | 8,288 | 131,712 | 535 | 587 | S | Pa.-Sil.-Dev.-Ord. |
| Edmond, West | 1943 | 150,000 | 62,036 | 87,964 | 5,478 | 9,308 | L | Sil.-Dev.-Hunton |
| Fitts | 1933 | 120,000 | 12,798 | 107,202 | 1,076 | 1,126 | S | Pa.-Sil.-Dev.-Ord. |
| Glenn Pool | 1905 | 265,000 | 26,465 | 238,535 | 2,587 | 2,615 | S | Pa.-Ord. |
| Golden Trend (Garvin-McLain counties) | 1945 | 180,000 | 145,414 | 34,586 | 15,347 | 12,115 | S-L | Pa.-Hunton-Ord. |
| Healdton | 1913 | 250,000 | 39,045 | 210,955 | 2,527 | 2,638 | S | Pa.-Ord. |
| Hewitt and West, Bayou | 1919 | 130,000 | 20,202 | 109,798 | 2,716 | 1,672 | S | Pa.-Ord. |
| Little River | 1927 | 140,000 | 16,991 | 123,009 | 1,194 | 1,432 | S | Pa.-Ord. |
| Oklahoma City | 1928 | 735,000 | 66,542 | 668,458 | 7,703 | 8,555 | S | Pa.-Ord.-Wilcox |
| Seminole City | 1926 | 170,000 | 16,319 | 153,681 | 1,441 | 1,474 | S | Pa.-Sil.-Dev.-Ord. |
| Sholem Alechem | 1923 | 110,000 | 56,838 | 53,162 | 5,831 | 4,799 | S | Pa. |
| St. Louis | 1927 | 190,000 | 17,160 | 172,840 | 1,283 | 1,336 | S | Pa.-Sil.-Dev.-Ord. |
| Tonkawa | 1921 | 127,000 | 2,390 | 124,610 | 265 | 307 | S | Pa.-Ord.-Wilcox |
| Velma | 1917 | 100,000 | 59,427 | 40,573 | 9,656 | 12,537 | S-L | Pa.-Ord. |
| Subtotal | | 3,852,000 | 698,310 | 3,153,690 | 68,656 | 72,240 | | |
| KANSAS: | | | | | | | | |
| El Dorado | 1916 | 255,000 | 53,295 | 201,705 | 3,084 | 3,025 | L | Pa.-Ord. |
| Silica | 1931 | 120,000 | 32,224 | 87,776 | 4,597 | 5,015 | L | Pa.-Ord. |
| Trapp | 1939 | 180,000 | 65,401 | 114,599 | 8,905 | 10,387 | L | Pa.-Ord. |
| Subtotal | | 555,000 | 150,920 | 404,080 | 16,586 | 18,427 | | |
| ARKANSAS: | | | | | | | | |
| Magnolia | 1938 | 100,000 | 40,718 | 59,282 | 4,165 | 4,637 | S-L | Jurassic |
| Smackover | 1922 | 480,000 | 57,242 | 422,758 | 3,848 | 3,872 | S | Jur.-U. Cret. |
| Subtotal | | 580,000 | 97,960 | 482,040 | 8,013 | 8,509 | | |
| LOUISIANA: | | | | | | | | |
| Caddo | 1905 | 215,000 | 30,894 | 184,106 | 4,968 | 3,381 | S | U. and L. Cret. |
| Delhi-Big Creek | 1944 | 165,000 | 127,702 | 37,298 | 9,226 | 10,555 | S | U. Cret. |
| Eraih | 1940 | 125,000 | 88,366 | 36,634 | 5,886 | 5,847 | S | Ter.-Mio. |
| Haynesville | 1921 | 130,000 | 26,864 | 103,136 | 4,941 | 4,120 | S-L | U. and L. Cret. |
| Iowa | 1931 | 100,000 | 33,127 | 66,873 | 2,202 | 2,383 | S | Ter.-Mio. |
| Jennings | 1901 | 120,000 | 18,988 | 101,012 | 1,225 | 1,518 | S | Ter.-Mio. |
| Lafitte | 1935 | 125,000 | 64,238 | 60,762 | 3,995 | 4,097 | S | Ter.-Mio. |
| Rodessa (Tex.-La.-Ark.) | 1930 | 185,000 | 24,018 | 160,982 | 2,382 | 2,800 | L | Cret. |
| Vinton | 1910 | 110,000 | 45,939 | 64,061 | 3,734 | 3,576 | S | Ter.-Mio. |
| Subtotal | | 1,275,000 | 460,136 | 814,864 | 38,559 | 38,277 | | |
| MISSISSIPPI: | | | | | | | | |
| Cranfield | 1943 | 120,000 | 95,173 | 24,827 | 6,921 | 11,850 | S | Cret. |
| Heidelberg | 1944 | 100,000 | 78,646 | 21,354 | 2,652 | 5,245 | S | Cret. |
| Tinsley | 1939 | 160,000 | 47,406 | 112,594 | 5,560 | 6,047 | S | Cret. |
| Subtotal | | 380,000 | 221,225 | 158,775 | 15,133 | 23,142 | | |
| ILLINOIS: | | | | | | | | |
| Bridgeport | 1906 | 265,000 | 22,614 | 242,386 | 1,943 | 1,899 | S | Pa. |
| Louden | 1937 | 210,000 | 60,346 | 149,654 | 6,077 | 6,716 | S-L | Miss.-Dev. |
| Robinson | 1906 | 170,000 | 12,984 | 157,016 | 1,381 | 1,253 | S | Pa. |
| Salem | 1938 | 250,000 | 37,834 | 212,166 | 4,106 | 4,687 | S-L | Miss.-Dev. |
| Subtotal | | 895,000 | 133,778 | 761,222 | 13,507 | 14,544 | | |
| NEW MEXICO: | | | | | | | | |
| Eunice | 1928 | 150,000 | 54,347 | 95,653 | 4,414 | 4,770 | L | Perm. |
| Hobbs | 1928 | 175,000 | 47,665 | 127,335 | 3,732 | 3,844 | L | Perm. |
| Monument | 1934 | 185,000 | 84,655 | 100,345 | 6,488 | 6,902 | L | Perm. |
| Vacuum | 1929 | 130,000 | 81,871 | 48,129 | 4,449 | 4,508 | L | Perm. |
| Subtotal | | 640,000 | 268,538 | 371,462 | 19,083 | 20,024 | | |

(Continued on Next Page)

## MAJOR FIELDS* VS. TOTAL UNITED STATES RESERVES AND PRODUCTION (Continued)

(In thousands of barrels)

| State and field— | Year of first discovery | Est. ultimate prod. | Remaining reserves 1-1-50 | Cumulative prod. to 1-1-50 | Prod. 1949 | Prod. 1948 | Main pay sands (S) or lime (L) | Geologic age of main production |
|---|---|---|---|---|---|---|---|---|
| **EASTERN TEXAS:** | | | | | | | | |
| East Texas field | 1930 | 5,000,000 | 2,320,196 | 2,679,804 | 93,589 | 111,879 | S | U. Cret.-Woodbine |
| Hawkins | 1940 | 500,000 | 392,151 | 107,849 | 11,453 | 17,612 | S | U. Cret.-Woodbine |
| Mexia | 1912 | 105,000 | 3,354 | 101,646 | 342 | 414 | S | U. Cret.-Woodbine |
| Powell | 1923 | 122,000 | 3,132 | 118,868 | 361 | 374 | S | U. Cret.-Woodbine |
| Talco | 1936 | 220,000 | 103,185 | 116,815 | 6,168 | 8,804 | L | L. Cret.-Paluxy |
| Van | 1929 | 450,000 | 246,223 | 203,777 | 8,312 | 12,115 | S | U. Cret.-Woodbine |
| Subtotal | | 6,397,000 | 3,068,241 | 3,328,759 | 120,225 | 151,198 | | |
| **NORTH TEXAS:** | | | | | | | | |
| Burkburnett | 1912 | 185,000 | 18,530 | 166,470 | 1,453 | 1,341 | S | Pa. |
| K.M.A. | 1931 | 180,000 | 52,272 | 127,728 | 4,799 | 4,404 | S-L | Pa.-Strawn |
| Electra | 1911 | 200,000 | 38,868 | 161,334 | 2,685 | 5,841 | S | Pa. |
| Subtotal | | 565,000 | 109,468 | 455,532 | 8,937 | 11,586 | | |
| **SOUTHWEST TEXAS:** | | | | | | | | |
| Luling-Branyon | 1921 | 115,000 | 22,589 | 92,411 | 1,430 | 1,485 | L | L. Cret.-Edwards |
| Darst Creek | 1928 | 110,000 | 36,714 | 73,286 | 2,503 | 2,562 | L | L. Cret.-Edwards |
| Subtotal | | 225,000 | 59,303 | 165,697 | 3,933 | 4,047 | | |
| **WEST TEXAS:** | | | | | | | | |
| Big Lake | 1923 | 125,000 | 15,055 | 109,945 | 1,032 | 1,110 | L | Perm.-Ord. |
| Cowden, North | 1930 | 225,000 | 143,410 | 81,590 | 6,109 | 8,947 | L | Perm. |
| Foster | 1932 | 145,000 | 87,827 | 57,173 | 6,013 | 8,105 | L | Perm. |
| Fullerton | 1942 | 325,000 | 264,198 | 60,802 | 10,069 | 15,918 | L | Perm.-Dev.-Ord. |
| Goldsmith | 1934 | 400,000 | 297,651 | 102,349 | 9,141 | 11,160 | L | Perm. |
| Hendrick | 1926 | 230,000 | 15,199 | 214,801 | 1,300 | 1,226 | L | Perm. |
| Howard-Glasscock | 1926 | 210,000 | 70,533 | 139,467 | 4,986 | 5,545 | L | Perm. |
| Keystone | 1930 | 360,000 | 283,436 | 76,564 | 11,029 | 14,559 | L | Perm.-Ord. |
| McCamey | 1925 | 125,000 | 47,611 | 77,389 | 3,025 | 3,417 | L | Perm. |
| McElroy | 1926 | 335,000 | 141,310 | 193,690 | 8,146 | 10,617 | L | Perm. |
| Scurry County Reef | 1948 | 900,000 | 895,828 | 4,172 | 4,166 | 6 | L | Pa. |
| Seminole | 1937 | 200,000 | 146,315 | 53,685 | 5,610 | 8,113 | L | Perm. |
| Slaughter-Levelland | 1936 | 650,000 | 486,870 | 163,130 | 22,822 | 27,371 | L | Perm. |
| T-X-L | 1944 | 250,000 | 186,606 | 63,394 | 16,474 | 23,934 | L | Perm.-Sil.-Dev.-Ord. |
| Ward, North, and Estes | 1929 | 120,000 | 52,777 | 67,223 | 2,797 | 3,876 | L | Perm. |
| Wasson | 1936 | 650,000 | 452,437 | 197,563 | 19,278 | 28,882 | L | Perm. |
| Yates | 1926 | 800,000 | 438,243 | 361,757 | 11,883 | 18,150 | L | Perm. |
| Subtotal | | 6,050,000 | 4,025,306 | 2,024,694 | 143,880 | 190,936 | | |
| **PANHANDLE TEXAS:** | | | | | | | | |
| Badger | 1926 | 105,000 | 37,822 | 67,178 | 3,514 | 3,565 | L | Perm. |
| Borger-Pantex | 1926 | 145,000 | 35,846 | 109,154 | 3,262 | 3,044 | L | Perm. |
| Finley | 1926 | 145,000 | 59,077 | 85,923 | 4,329 | 4,574 | GW | Pa. |
| West Pampa | 1926 | 145,000 | 52,191 | 92,809 | 4,935 | 3,982 | L | Perm. |
| Subtotal | | 540,000 | 184,936 | 355,064 | 16,040 | 15,165 | | |
| **TEXAS GULF COAST:** | | | | | | | | |
| Agua Dulce to La Gloria | 1928 | 1,350,000 | 1,159,545 | 190,455 | 27,772 | 25,854 | S | Ter.-Olig. |
| Anahuac | 1935 | 250,000 | 155,749 | 94,251 | 7,090 | 10,806 | S | Ter.-Olig. |
| Barbers Hill | 1916 | 120,000 | 30,780 | 89,220 | 1,954 | 1,944 | S | Ter.-Olig.-Mio. |
| Conroe | 1931 | 550,000 | 268,790 | 281,210 | 11,633 | 20,437 | S | Ter.-Eoc. |
| Greta | 1933 | 125,000 | 72,966 | 52,034 | 3,056 | 4,388 | S | Ter.-Olig.-Mio. |
| Hastings | 1934 | 450,000 | 266,786 | 183,214 | 14,308 | 21,655 | S | Ter.-Olig. |
| Hull | 1918 | 135,000 | 28,198 | 106,802 | 1,750 | 1,523 | S | Ter.-E.O.M. |
| Humble and Light | 1904 | 160,000 | 26,006 | 133,994 | 1,289 | 1,149 | S | Ter.-E.O.M. |
| Katy | 1938 | 120,000 | 96,075 | 23,925 | 5,271 | 5,006 | S | Ter.-Eoc. |
| Magnet-Withers and North | 1936 | 100,000 | 44,401 | 55,599 | 3,729 | 2,770 | S | Ter.-Olig. |
| Old Ocean | 1934 | 175,000 | 120,899 | 54,101 | 5,117 | 5,969 | S | Ter.-Olig. |
| Refugio area | 1931 | 105,000 | 45,220 | 59,780 | 2,353 | 3,162 | S | Ter.-Olig. |
| Sour Lake | 1902 | 105,000 | 18,766 | 86,234 | 1,337 | 1,181 | S | Ter.-E.O.M. |
| Spindletop | 1901 | 135,000 | 5,592 | 129,408 | 492 | 398 | S | Ter.-Olig.-Mio. |
| Thompson | 1931 | 325,000 | 182,281 | 142,719 | 11,734 | 12,852 | S | Ter.-Olig.-Mio. |
| Tom O'Connor | 1934 | 500,000 | 353,549 | 146,451 | 12,166 | 18,202 | S | Ter.-Olig. |
| Webster (Friendswood) | 1937 | 380,000 | 241,218 | 138,782 | 13,144 | 20,745 | S | Ter.-Eoc.-Olig. |
| West Columbia | 1902 | 140,000 | 31,511 | 108,489 | 2,657 | 2,590 | S | Ter.-Olig.-Mio. |
| West Ranch | 1938 | 200,000 | 140,629 | 59,371 | 5,058 | 6,996 | S | Ter.-Olig. |
| Goose Creek | 1908 | 110,000 | 26,269 | 83,731 | 1,741 | 910 | S | Ter.-Olig. |
| Subtotal | | 5,535,000 | 3,315,230 | 2,219,770 | 133,651 | 168,537 | | |
| **NEW YORK-PENNSYLVANIA:** | | | | | | | | |
| Allegany | 1879 | 175,000 | 43,280 | 131,720 | 3,438 | 3,551 | S | Devonian |
| Bradford | 1871 | 595,000 | 69,259 | 525,741 | 9,758 | 11,173 | S | Devonian |
| Subtotal | | 770,000 | 112,539 | 657,641 | 13,196 | 14,724 | | |
| Total major fields | | 39,381,000 | 16,400,780 | 22,980,220 | 895,988 | 1,039,769 | | |
| Total U. S. all fields to date | | 64,999,164 | 25,909,000 | 39,090,164 | 1,878,304 | 2,051,433 | | |
| Major fields' share of total | | 60.6% | 63.3% | 58.8% | 47.7% | 50.7% | | |

*Fields with estimated ultimate production of 100 million barrels or more.

# Crude Production Off 468,000 Bbl. Daily From 1948 High

**by John C. Casper**

CRUDE-OIL production averaged 5,043,000 bbl. daily in 1949, a decrease of 468,000 bbl. daily, or 8.5 per cent, from the record set in 1948. The figures for 1949 are taken from industry sources and include all liquid-hydrocarbon production except the output from natural-gasoline and cycling plants. The totals for some states may vary slightly from the figures given in the detailed tables of production and reserves by fields, since the field data include the additional condensate processed at plants.

One of the principal factors in the big drop in production from 1948 to 1949 was the fact that 284,000 bbl. daily of the 1948 production was used to increase crude and refined-products stocks. In other words, demand could have increased 4.6 per cent in 1949 without any need for a gain in crude production.

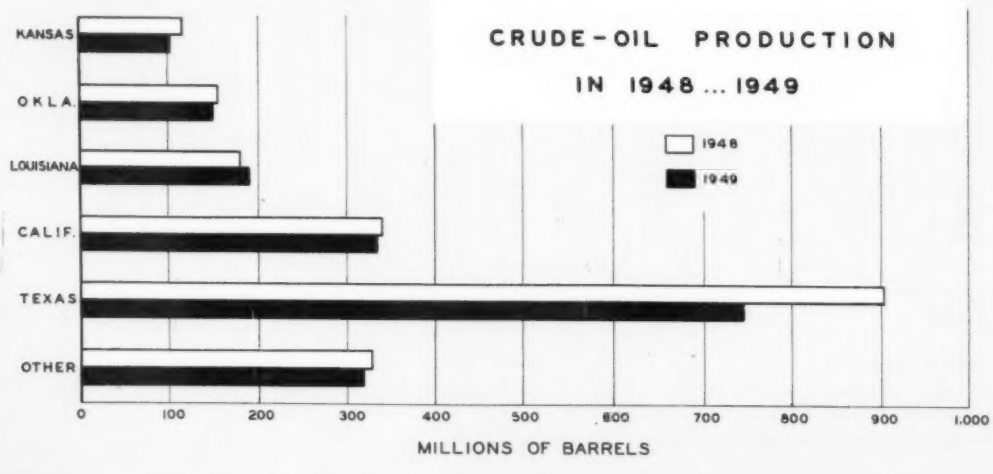
The expected increase in domestic demand failed to materialize because warm winter weather reduced the need for heating oils. Domestic demand was at about the same level as 1948.

Another major factor in the decreased demand for domestic crude was a gain in imports of crude and products, amounting to 122,000 bbl. daily. Since exports decreased about 34,000 bbl. daily, there was a loss of 156,000 bbl. daily from the import-export balance.

Production at natural-gasoline and cycling plants increased about 28,000 bbl. daily in 1949 and the products from these plants were in competition with products from crude.

UNITED STATES PRODUCTION—DAILY AVERAGE PER WELL

| | 1949 (thou. bbl.) | Producing wells 1-1-50 | Daily avg. bbl. per well |
|---|---|---|---|
| Alabama | 454 | 38 | 32.7 |
| Arkansas | 29,420 | 3,492 | 23.1 |
| California | 334,484 | 24,594 | 37.3 |
| Colorado | 23,406 | 749 | 85.6 |
| Florida | 457 | 11 | 113.8 |
| Illinois | 64,086 | 31,240 | 5.6 |
| Indiana | 9,745 | 3,774 | 7.1 |
| Kansas | 100,139 | 29,095 | 9.4 |
| Kentucky | 8,687 | 14,895 | 1.6 |
| Louisiana | 191,409 | 10,753 | 48.8 |
| Michigan | 16,447 | 3,655 | 12.3 |
| Mississippi | 38,066 | 1,440 | 72.4 |
| Montana | 9,265 | 2,922 | 8.7 |
| New Mexico | 48,013 | 5,657 | 23.3 |
| New York | 4,242 | 16,814 | 0.7 |
| Ohio | 3,426 | 22,476 | 0.4 |
| Oklahoma | 150,003 | 54,360 | 7.6 |
| Pennsylvania | 11,379 | 55,627 | 0.6 |
| Texas | 746,244 | 117,420 | 17.4 |
| West Virginia | 2,830 | 16,526 | 0.5 |
| Wyoming | 47,467 | 4,936 | 26.3 |
| Miscellaneous | 1,019 | 221 | 12.6 |
| Total United States | 1,840,688 | 420,695 | 12.0 |



## *United States Production of Crude Oil—By States—1943-1949*

(In thousands of barrels per year)

| | 1949 prod. change | 1949 | 1948 | 1947 | 1946 | 1945 | 1944 | 1943 | Cum.-Prod. 1857-1949 |
|---|---|---|---|---|---|---|---|---|---|
| Alabama | — 12 | 454 | 466 | 396 | 380 | 181 | 54 | | 1,931 |
| Arkansas | — 2,255 | 29,420 | 31,675 | 29,948 | 28,375 | 28,613 | 29,418 | 27,600 | 785,222 |
| California | — 5,605 | 334,484 | 340,089 | 333,132 | 314,713 | 326,482 | 311,793 | 284,188 | 8,330,858 |
| Colorado | + 5,652 | 23,406 | 17,754 | 15,702 | 11,856 | 4,959 | 2,944 | 2,320 | 123,687 |
| Florida | + 168 | 457 | 289 | 259 | 68 | 30 | 12 | | 1,115 |
| Illinois | — 583 | 64,086 | 64,669 | 66,459 | 75,297 | 75,210 | 77,413 | 82,260 | 1,431,492 |
| Indiana | + 3,035 | 9,745 | 6,710 | 6,095 | 6,726 | 4,868 | 5,118 | 5,283 | 189,636 |
| Kansas* | — 10,699 | 100,187 | 110,886 | 105,187 | 97,281 | 96,041 | 98,825 | 106,104 | 1,981,296 |
| Kentucky† | + 149 | 8,708 | 8,559 | 9,405 | 10,590 | 10,325 | 9,621 | 7,909 | 241,648 |
| Louisiana | + 10,228 | 191,409 | 181,181 | 160,128 | 143,669 | 130,566 | 129,207 | 123,592 | 2,392,839 |
| Michigan | — 423 | 16,447 | 16,870 | 16,215 | 17,074 | 17,259 | 18,490 | 20,768 | 306,194 |
| Mississippi | — 7,743 | 38,066 | 45,809 | 34,925 | 24,298 | 18,775 | 16,337 | 18,807 | 246,076 |
| Montana | — 115 | 9,265 | 9,380 | 8,742 | 8,825 | 8,397 | 8,627 | 7,916 | 160,481 |
| Nebraska | + 28 | 268 | 240 | 229 | 279 | 318 | 402 | 735 | 5,834 |
| New Mexico | + 44 | 48,013 | 47,969 | 40,926 | 36,814 | 37,281 | 39,555 | 38,896 | 634,317 |
| New York | — 379 | 4,242 | 4,621 | 4,762 | 4,863 | 4,648 | 4,697 | 5,059 | 171,753 |
| Ohio | + 126 | 3,426 | 3,300 | 3,108 | 2,908 | 2,828 | 2,937 | 3,322 | 613,873 |
| Oklahoma | — 4,029 | 150,003 | 154,032 | 141,019 | 134,794 | 138,036 | 124,616 | 123,152 | 6,031,926 |
| Pennsylvania | — 1,288 | 11,379 | 12,667 | 12,690 | 12,996 | 12,515 | 14,118 | 15,757 | 1,124,952 |
| Texas | —157,074 | 746,244 | 903,318 | 820,210 | 760,215 | 755,533 | 748,122 | 594,343 | 12,948,969 |
| Utah | + 625 | 640 | 15 | | | | | | 655 |
| Virginia | + 8 | 42 | 34 | 61 | 12 | 4 | 3 | | 156 |
| West Virginia | + 143 | 2,830 | 2,687 | 2,617 | 2,929 | 2,875 | 3,067 | 3,349 | 440,807 |
| Wyoming | — 6,537 | 47,467 | 54,004 | 44,772 | 38,977 | 35,359 | 32,388 | 34,253 | 853,502 |
| Total U. S. | —176,536 | 1,840,688 | 2,017,224 | 1,856,987 | 1,733,939 | 1,711,103 | 1,677,764 | 1,505,613 | 39,019,219 |

*Includes Missouri. †Includes Tennessee.

The over-all decrease in the demand for domestic crude was met by drastic cuts in allowables by some states, particularly Texas.

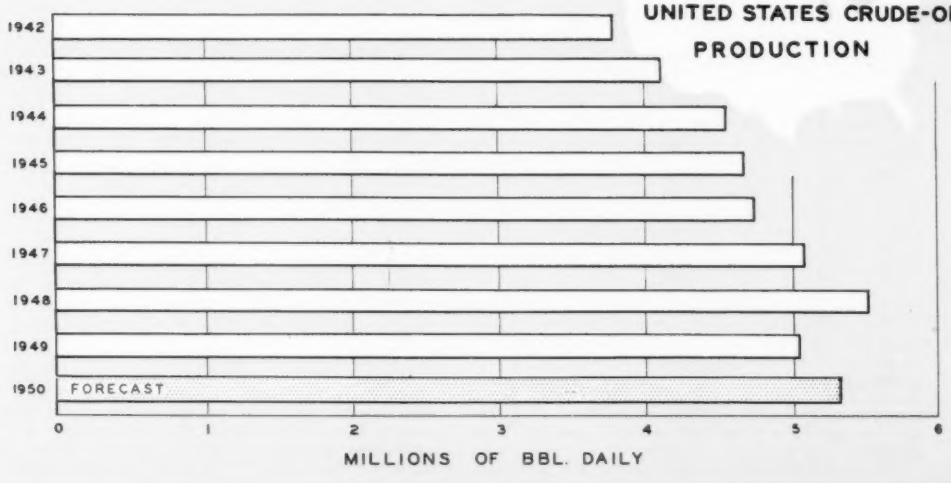
In a year when well completions in the state set a new record, Texas production was reduced 423,000 bbl. daily, or 17 per cent. In fact, the cut in production by Texas was almost equal to the total output from 18 states. Listed in order of production, these would include all states from Mississippi through Tennessee.

Louisiana was the only major producing state showing an increase for the year. Production was up 29,000 bbl. daily, or about 5.8 per cent.

Colorado production gained 15,000 bbl. daily due to increased pipe-line capacity from Rangely field.

The only shift in the order of the first 10 states was the change between New Mexico and Wyoming.

Most industry forecasts for 1950 indicate an increase in crude production, with the amount of the increase ranging from 3 to 5 per cent.



# Proven Reserves of Both Gas And Liquid Show Good Gain

**by Charles J. Deegan**

AS one result of the second largest drilling program in history, the proven reserves of the United States continued their postwar upward trend to the highest levels on record. Table 1 shows the total figures in handy digest form: total liquids had an increase of over 1¼ billion barrels; total gas reserves gained almost 3 trillion cubic feet.

The detailed comparisons, state by state, will be found in Tables 2, 3, and 4. Table 5 shows the significant changes in reserves of crude and condensate as the industry's raw-material inventory, i.e., ratio of proven reserves to rate of withdrawal from the reservoirs.

Ordinarily there would be a danger signal in the sudden and large increase in ratio of reserves to rate of withdrawals, as shown in Table 5, from 12.1 for total United States at the end of last year to 13.8 at the beginning of 1950. Such a jump, and to that high ratio, might suggest that the industry's raw-material inventory is getting out of line with market demand for crude oil.

There are signs, however, that this may be an exceptional case, and the high ratio of underground inventory may be only temporary. In part the high ratio is due to the fact that less crude was withdrawn from underground reservoirs and sold in 1949 than in 1948. Therefore, even with no increase in proven reserves, the ratio of reserves to production would have increased, simply because the withdrawals were lower.

If 1948 was simply the year in which the frantic postwar expansion of production finally caught up with demand and overshot the mark, then 1949 was the year of adjustment and correction. Several years from now, looking back at a curve of demand for crude, we may find 1947 a normal point, 1948 an abnormally high point, 1949 an abnormally low point, and perhaps 1950 will be back on the normal trend again.

If this turns out to be the case, then the inventory ratio of reserves to production will show a drop next January, back to a normal of somewhere between 12 and 13 times production.

The 1950 drilling program of the operators, as shown in the first part of this special section, indicates that the industry is proceeding along a course that looks to 1950 as a year of normal demand for crude. That means a continuation of the long-term steady upward trend in demand.

### Gas Reserves

The substantial increase in gas reserves is undoubtedly the result of increased price and demand on the one hand, and the pressure of state regulatory bodies for conservation of gas resources on the other. Of the two factors, even the members of the regulatory bodies would probably admit that a market for the gas, at a price that makes it profitable to conserve it, is the most effective.

The increase in number and size of gas pipe lines to the thickly populated eastern consuming centers creates a demand for stable and dependable gas reserves. So far the supply of gas, over-all, exceeds the demand, but even the potential demand is having its influence on reserves.

**TABLE 1—PROVEN RESERVES OF TOTAL LIQUID HYDROCARBONS AND DRY NATURAL GAS IN UNITED STATES**

**(Millions of barrels and billion cubic feet)**

| | Jan. 1, 1950 | Jan. 1, 1949 | Change |
|---|---|---|---|
| Crude oil, condensate, and other natural gas liquids | 28,586 | 27,325 | +1,261 |
| Dry natural gas | 178,136 | 175,187 | +2,949 |

### Texas Dominates Scene

Again Texas leads in everything, total liquid hydrocarbons, crude and condensate, and dry natural gas. It also had the largest increases in reserves. Because it took the brunt of production cutbacks in 1949, at the end of the year it showed the largest jump in inventory ratio, from 15.3 to 19.1.

The largest gains in Texas crude and condensate reserves came in West Texas, where slightly over one-fifth of all the proven reserves in the United States are now concentrated. The Texas Gulf Coast area also showed a good gain. Eastern Texas discoveries and revisions failed to balance the withdrawals from East Texas field plus the other fields there.

### California on Up Trend

The optimistic feeling noticeable among California oil exploration men in the past year is fully justified by the proven-reserve figures. Crude and condensate reserves showed an increase of slightly over 10 per cent in 1949. The biggest increase came in the San Joaquin Valley area, aided substantially by development of the Cuyama area. However, the Coastal area turned in a nice increase, and even the Los Angeles basin showed a fair gain.

### Other Areas

Louisiana was an exception to the general rule of lower production in 1949 than 1948 but increased its reserves by about 3 per cent in spite of increased production. Percentagewise the increase was about the same in both the northern and southern parts of the state, although nearly 80 per cent of the reserves are in the southern area.

Oklahoma, the only other state in the billion-barrel class, showed a proven-reserve increase of about 10 per cent. This was the result of a combination of new developments in the Anadarko basin, active enlargement of some of the older areas, and the first steps in what is now an officially approved program for water flooding in Burbank field.

## Table 2—Changes in Total Liquid Reserves by States, 1950 vs. 1949

(Millions of barrels)

| | Reserves crude plus condensate 1-1-49 | Reserves crude plus condensate 1-1-50 | Reserves other nat. gas liquids 1-1-49 | Reserves other nat. gas liquids 1-1-50 | Reserves total liquid hydrocarbons 1-1-49 | Reserves total liquid hydrocarbons 1-1-50 | Changes in total liquid reserves |
|---|---|---|---|---|---|---|---|
| Texas | 14,094 | 14,687 | 1,500 | 1,590 | 15,594 | 16,277 | + 683 |
| California | 3,581 | 3,945 | 210 | 200 | 3,791 | 4,145 | + 354 |
| Louisiana | 2,050 | 2,112 | 350 | 370 | 2,400 | 2,482 | + 82 |
| Oklahoma | 1,116 | 1,226 | 100 | 164 | 1,216 | 1,390 | + 174 |
| Wyoming | 745 | 705 | 31 | 35 | 776 | 740 | — 36 |
| Kansas-Nebraska-Missouri | 653 | 677 | 73 | 77 | 726 | 754 | + 28 |
| New Mexico | 576 | 566 | 86 | 90 | 662 | 656 | — 6 |
| Mississippi | 495 | 463 | 65 | 45 | 560 | 508 | — 52 |
| Illinois | 402 | 417 | 2 | 13 | 404 | 430 | + 26 |
| Colorado-Utah | 317 | 276 | 5 | 25 | 322 | 301 | — 21 |
| Arkansas | 300 | 301 | 21 | 25 | 321 | 326 | + 5 |
| Pennsylvania | 107 | 103 | 2 | 2 | 109 | 105 | — 4 |
| Michigan | 93 | 89 | 1 | 1 | 94 | 90 | — 4 |
| Montana | 90 | 105 | 8 | 8 | 98 | 113 | + 15 |
| Indiana | 57 | 60 | 2 | 0 | 59 | 60 | + 1 |
| New York | 51 | 57 | 0 | 0 | 51 | 57 | + 6 |
| Kentucky-Tennessee | 40 | 50 | 15 | 15 | 55 | 65 | + 10 |
| West Virginia-Virginia | 33 | 35 | 18 | 15 | 51 | 50 | — 1 |
| Ohio | 30 | 28 | 2 | 2 | 32 | 30 | — 2 |
| Alabama | 2 | 3 | 0 | 0 | 2 | 3 | + 1 |
| Florida | 2 | 4 | 0 | 0 | 2 | 4 | + 2 |
| Total United States | 24,834 | 25,909 | 2,491 | 2,677 | 27,325 | 28,586 | +1,261 |

## Table 3—Proven Crude-Oil and Condensate Reserves, January 1, 1950

(In thousands of barrels)

| State— | Estimated reserves as of 1-1-49 | 1949 Discoveries | Extensions and revisions | Total | Less 1949 production | Estimated reserve as of 1-1-50 | Change from 1-1-49 | Per cent U. S. total |
|---|---|---|---|---|---|---|---|---|
| Texas total | 14,094,000 | 89,930 | 1,271,093 | 15,455,023 | 768,023 | 14,687,000 | + 593,000 | 56.7 |
| Panhandle | 337,000 | 1,000 | 27,165 | 365,165 | 33,165 | 332,000 | — 5,000 | 1.3 |
| West | 4,595,000 | 17,930 | 853,216 | 5,466,146 | 228,146 | 5,238,000 | + 643,000 | 20.2 |
| North | 517,000 | 4,120 | 75,928 | 597,048 | 70,048 | 527,000 | + 10,000 | 2.0 |
| Eastern | 3,464,000 | 4,250 | 31,871 | 3,500,121 | 144,121 | 3,356,000 | — 108,000 | 13.0 |
| Southwest | 1,944,000 | 21,270 | 59,109 | 2,024,379 | 87,379 | 1,937,000 | — 7,000 | 7.5 |
| Gulf Coast | 3,237,000 | 41,360 | 223,604 | 3,502,164 | 205,164 | 3,297,000 | + 60,000 | 12.7 |
| California total | 3,581,000 | 213,025 | 488,538 | 4,282,563 | 337,563 | 3,945,000 | + 364,000 | 15.2 |
| Los Angeles | 1,151,000 | 8,195 | 146,471 | 1,305,666 | 119,666 | 1,186,000 | + 35,000 | 4.6 |
| Coastal | 611,000 | 2,370 | 106,997 | 720,367 | 65,367 | 655,000 | + 44,000 | 2.5 |
| San Joaquin | 1,819,000 | 202,460 | 235,070 | 2,256,530 | 152,530 | 2,104,000 | + 285,000 | 8.1 |
| Louisiana total | 2,050,000 | 20,100 | 244,954 | 2,315,054 | 203,054 | 2,112,000 | + 62,000 | 8.2 |
| Northern | 440,000 | 900 | 64,528 | 505,428 | 51,428 | 454,000 | + 14,000 | 1.8 |
| Southern | 1,610,000 | 19,200 | 180,426 | 1,809,626 | 151,626 | 1,658,000 | + 48,000 | 6.4 |
| Oklahoma | 1,116,000 | 29,480 | 230,523 | 1,376,003 | 150,003 | 1,226,000 | + 110,000 | 4.8 |
| Wyoming | 745,000 | 6,380 | 1,087 | 752,467 | 47,467 | 705,000 | — 40,000 | 2.7 |
| Kans.-Neb.-Mo. | 653,000 | 46,700 | 77,755 | 777,455 | 100,455 | 677,000 | + 24,000 | 2.6 |
| New Mexico | 576,000 | 1,150 | 36,863 | 614,013 | 48,013 | 566,000 | — 10,000 | 2.2 |
| Mississippi | 495,000 | 900 | 6,279 | 502,179 | 39,179 | 463,000 | — 32,000 | 1.8 |
| Illinois | 402,000 | 15,460 | 63,626 | 481,086 | 64,086 | 417,000 | + 15,000 | 1.6 |
| Colorado | 314,500 | 50 | —20,144 | 294,406 | 23,406 | 271,000 | — 43,500 | 1.1 |
| Arkansas | 300,000 | 750 | 29,670 | 330,420 | 29,420 | 301,000 | + 1,000 | 1.2 |
| Pennsylvania | 107,000 | 0 | 7,379 | 114,379 | 11,379 | 103,000 | — 4,000 | 0.4 |
| Michigan | 93,000 | 7,240 | 5,207 | 105,447 | 16,447 | 89,000 | — 4,000 | 0.3 |
| Montana | 90,000 | 800 | 23,465 | 114,265 | 9,265 | 105,000 | + 15,000 | 0.4 |
| Indiana | 57,000 | 1,860 | 10,885 | 69,745 | 9,745 | 60,000 | + 3,000 | 0.2 |
| New York | 51,000 | 0 | 10,242 | 61,242 | 4,242 | 57,000 | + 6,000 | 0.2 |
| Kentucky-Tenn. | 40,000 | 1,900 | 16,808 | 58,708 | 8,708 | 50,000 | + 10,000 | 0.2 |
| West Virginia-Va. | 33,000 | 0 | 4,872 | 37,872 | 2,872 | 35,000 | + 2,000 | 0.1 |
| Ohio | 30,000 | 0 | 1,426 | 31,426 | 3,426 | 28,000 | — 2,000 | 0.1 |
| Utah | 2,500 | 1,000 | 2,140 | 5,640 | 640 | 5,000 | + 2,500 | |
| Alabama | 2,000 | 0 | 1,454 | 3,454 | 454 | 3,000 | + 1,000 | |
| Florida | 2,000 | 100 | 2,357 | 4,457 | 457 | 4,000 | + 2,000 | |
| Total U. S. | 24,834,000 | 436,825 | 2,516,479 | 27,787,304 | 1,878,304 | 25,909,000 | +1,075,000 | 100.0 |

**TABLE 4—UNITED STATES NATURAL GAS RESERVES—JAN. 1, 1950, VS. JAN. 1, 1949**

(Billion cubic feet at 60° F. and 14.65 psia.)

| | Natural gas reserves | | |
|---|---|---|---|
| | 1-1-49 | 1-1-50 | Changes |
| Texas | 96,200 | 98,900 | +2,700 |
| California | 10,350 | 10,400 | + 50 |
| Louisiana | 25,350 | 24,980 | — 370 |
| Oklahoma | 11,880 | 11,900 | + 20 |
| Wyoming | 1,530 | 1,600 | + 70 |
| Kansas | 14,205 | 14,290 | + 85 |
| New Mexico | 6,500 | 6,380 | — 120 |
| Mississippi | 2,420 | 2,440 | + 20 |
| Illinois | 240 | 220 | — 20 |
| Colo.-Utah | 350 | 800 | + 450 |
| Arkansas | 860 | 870 | + 10 |
| Pennsylvania | 475 | 520 | + 45 |
| Michigan | 150 | 160 | + 10 |
| Montana | 810 | 830 | — 20 |
| Indiana | 17 | 20 | + 3 |
| New York | 60 | 63 | + 3 |
| Ky.-Tenn. | 1,340 | 1,350 | + 10 |
| W. Va.-Va. | 1,840 | 1,800 | — 40 |
| Ohio | 610 | 613 | + 3 |
| Total U.S. | 175,187 | 178,136 | +2,949 |

**TABLE 5—RATIO OF RESERVES TO PRODUCTION**

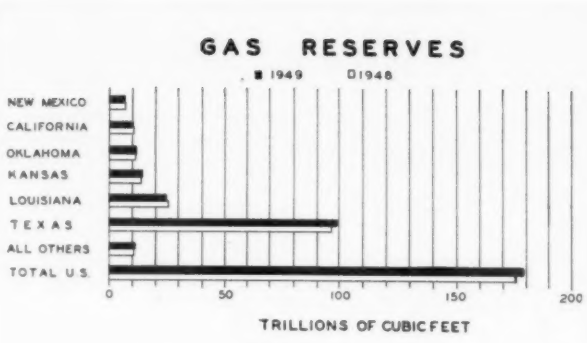
(Crude plus condensate)

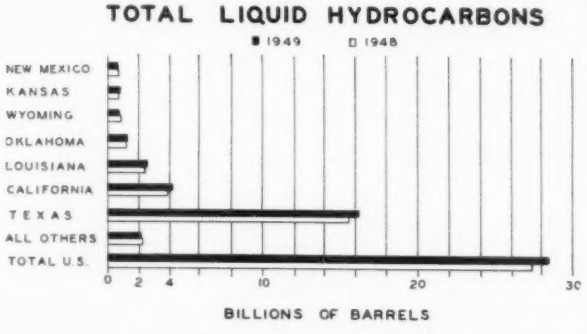
| | Jan. 1, 1950 | Jan. 1, 1949 | Jan. 1, 1948 |
|---|---|---|---|
| Texas | 19.1 | 15.3 | 15.9 |
| California | 11.7 | 10.4 | 10.3 |
| Louisiana | 10.4 | 10.8 | 11.3 |
| Oklahoma | 8.2 | 7.2 | 7.0 |
| Kansas | 6.7 | 6.0 | 6.0 |
| Illinois | 6.5 | 6.3 | 5.7 |
| New Mexico | 11.8 | 12.1 | 13.2 |
| Wyoming | 14.9 | 13.5 | 17.3 |
| Mississippi | 11.8 | 10.5 | 13.9 |
| Arkansas | 10.2 | 9.5 | 8.7 |
| Colorado | 11.6 | 18.4 | 20.5 |
| Michigan | 5.4 | 5.6 | 5.6 |
| Pennsylvania | 9.1 | 8.5 | 9.8 |
| Indiana | 6.2 | 7.1 | 6.4 |
| Montana | 11.3 | 9.6 | 9.5 |
| Ky.-Tenn. | 5.7 | 4.4 | 4.6 |
| New York | 13.4 | 11.2 | 12.8 |
| Ohio | 8.2 | 9.1 | 9.4 |
| W.Va.-Va. | 12.2 | 12.1 | 12.8 |
| Total U. S. | 13.8 | 12.1 | 12.5 |

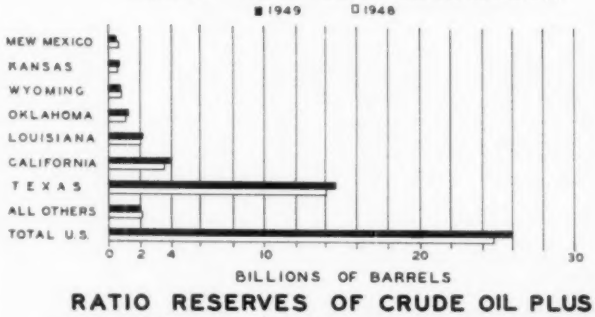
In the group of five states just below the billion-barrel mark—Wyoming, Kansas, New Mexico, Mississippi, and Illinois—there was no change in order of rank. New Mexico had some important-looking discoveries which can be rated as "potentially large reserves," but the steady pace of drilling in Kansas, and the staying power of its settled lime production fields, makes it unlikely that New Mexico will pass Kansas this year.

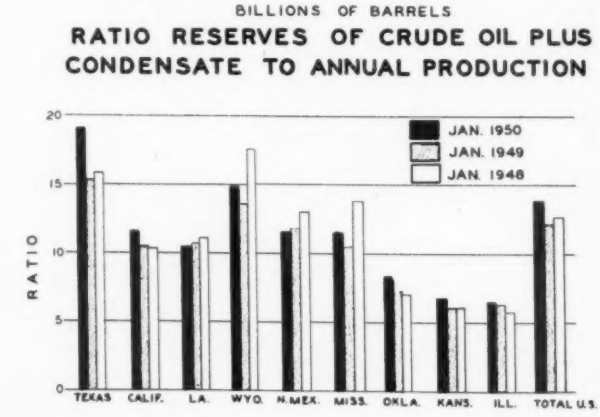
Mississippi had a rather disappointing year from the standpoint of new discoveries that looked important. However, two potential strikes in the early weeks of 1950 may forecast a different picture in the coming year. Considering New Mexico's good prospects, however, it does not now seem likely that Mississippi will overtake it in 1950.

The next group of five states all rank below 500 million, down to just under 100 million barrels. In this group, Arkansas, plugging along steadily and holding its own with minor discoveries, passed Colorado where revisions in previous reserve figures were downward. Montana passed both Michigan and Pennsylvania.



# Imports of Crude and Products Reached New High in 1949

**by Henry D. Ralph**

IMPORTS of crude oil and refined products into continental United States averaged 635,000 bbl. daily in 1949 to reach a new all-time high. This represents an increase of 122,000 bbl. daily, or 24 per cent, over 1948.

For the year, 10.3 per cent of total demand was supplied by imports, compared with 8.4 per cent in 1948 and 7.4 per cent in 1947. (See chart below.)

Crude oil accounted for 67 per cent of all imports in 1949 and gained 73,000 bbl. daily, or 21 per cent, over 1948. Heavy fuel made up 31 per cent of the total after a 37 per cent gain over the previous year. A large part of this fuel enters bonded storage and is withdrawn duty free for bunkering ships in foreign trade. However, increased domestic consumption is indicated for 1949 since imports gained about 19,000,000 bbl. and bunker sales to foreign-trade vessels decreased over 4,000,000 bbl. Imports of other products, mostly distillate fuel and asphalt, decreased 4,000 bbl. daily for the year.

The trend toward a larger portion of crude from the Middle East continued in 1949. Based on actual records for the first 11 months, Middle East crude amounted to 27 per cent of total crude received, compared with 18 per cent in 1948 and less than 0.4 per cent in 1947. Mexico and South American countries supplied 73 per cent of the total in 1949 compared with 82 per cent in 1948. Venezuela's portion dropped from 73 per cent in 1948 to 62 per cent in the first 11 months of 1949.

On a basis of trends existing at the end of the year, total imports for 1950 are estimated at 710,000 bbl. daily.

Exports from continental United States, including shipments to territories, averaged about 325,000 bbl. daily in 1949, the lowest year since 1934 except for 1941 and 1942 when tanker movement was handicapped by submarine warfare.

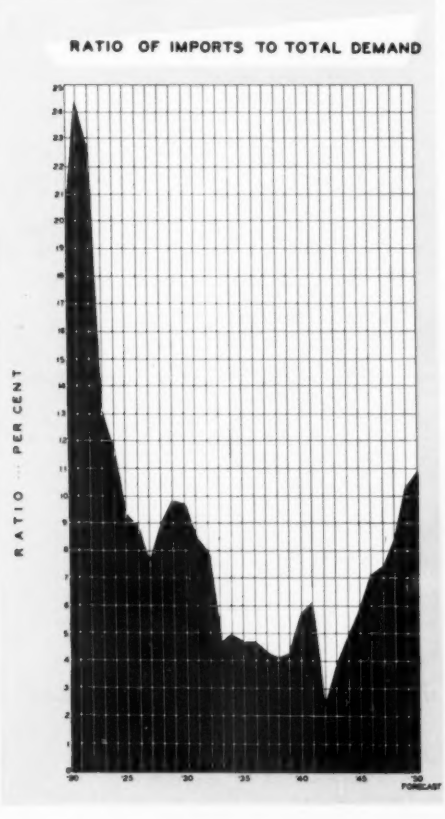



**TABLE 1—EXPORTS—CRUDE AND REFINED PRODUCTS**
**(Thousands of barrels daily)**

| Year | Crude | Gasoline | Distillate | Other products | Total |
|---|---|---|---|---|---|
| 1935 | 141 | 84 | 79 | 49 | 353 |
| 1936 | 137 | 78 | 56 | 89 | 360 |
| 1937 | 184 | 105 | 83 | 102 | 474 |
| 1938 | 212 | 137 | 81 | 101 | 531 |
| 1939 | 198 | 122 | 88 | 110 | 518 |
| 1940 | 141 | 69 | 52 | 94 | 356 |
| 1941 | 91 | 74 | 46 | 87 | 298 |
| 1942 | 93 | 96 | 59 | 72 | 320 |
| 1943 | 113 | 141 | 69 | 88 | 411 |
| 1944 | 94 | 275 | 118 | 84 | 571 |
| 1945 | 90 | 241 | 92 | 78 | 501 |
| 1946 | 116 | 124 | 81 | 98 | 419 |
| 1947 | 127 | 130 | 82 | 112 | 451 |
| 1948 | 109 | 102 | 60 | 98 | 369 |
| 1949* | 91 | 110 | 34 | 90 | 325 |
| 1950† | 87 | 95 | 32 | 86 | 300 |

*Ten months actual, 2 months estimated. †Forecast.

**TABLE 2—IMPORTS—CRUDE AND REFINED PRODUCTS**
**(Thousands of barrels daily)**

| Year | Crude | Heavy fuel | Other products | Total |
|---|---|---|---|---|
| 1935 | 88 | 44 | 12 | 144 |
| 1936 | 89 | 51 | 16 | 156 |
| 1937 | 75 | 61 | 21 | 157 |
| 1938 | 72 | 58 | 19 | 149 |
| 1939 | 91 | 43 | 28 | 162 |
| 1940 | 117 | 80 | 32 | 229 |
| 1941 | 139 | 102 | 25 | 266 |
| 1942 | 34 | 50 | 14 | 98 |
| 1943 | 38 | 75 | 61 | 174 |
| 1944 | 122 | 100 | 30 | 252 |
| 1945 | 203 | 87 | 21 | 311 |
| 1946 | 236 | 122 | 19 | 377 |
| 1947 | 267 | 149 | 21 | 437 |
| 1948 | 353 | 145 | 15 | 513 |
| 1949* | 426 | 198 | 11 | 635 |
| 1950† | 475 | 227 | 10 | 710 |

*Ten months actual, 2 months estimated. †Forecast.

# 1950 Demand Seen As Nearly 6.5 Million Barrels Daily

**by E. T. Knight**

DEMANDS for petroleum products as projected for 1950 indicate that total requirements will approximate 6,491,000 bbl. daily, an amount 5.7 per cent greater than the indicated demand for the year just ended. Consumption of petroleum products in the United States is expected to average 6,181,000 bbl. daily or 6.3 per cent more than the average daily consumption in 1949. Shipments to foreign nations are forecast to average 310,000 bbl. daily during 1950 and will be 5.4 per cent below the 1949 average rate of exports of crude oil and products.

The following discussion of probable rates of operations of the oil industry during the next 12 months will also include some observations that may provide a better understanding of historical statistics.

It is recommended that in reviewing this forecast, trends in demands and supply be considered equally as significant as the absolute volumes presented.

### Forecasting Difficulties

The difficulties of forecasting absolute data are best demonstrated by comparisons of the projections presented a year ago with the volumes actually realized in 1949. Such a comparison indicates that:

1. Demands for middle distillates were 15 per cent, or 219,690 bbl. daily below forecast requirements.

2. Demands for residual fuels were 5.2 per cent, or 74,550 bbl. daily below expectations.

3. Demands for other products varied above and below their respective forecast requirements and in total were 3.1 per cent, or 105,890 bbl. daily, below forecasts.

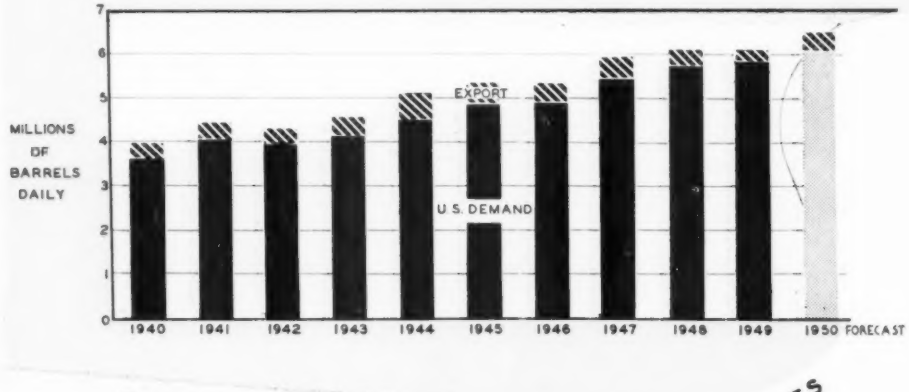
4. Exports of crude oil and petroleum products failed to meet projected exports by 59,190 bbl. per day.

### SUPPLY AND DEMAND

**THIS forecast of the volume of petroleum and products expected to move in United States trade this year is based on a projection of known facts and continuation of economic trends, and is not to be considered a recommendation. The author is petroleum economist for Atlantic Refining Co., Philadelphia.**

### HIGHLIGHTS

| | 1950 | |
|---|---|---|
| | Bbl. daily | Per cent increase over 1949 |
| Crude production | 5,340,500 | 5.8 |
| Crude run to stills | 5,648,000 | 6.1 |
| Total imports | 709,700 | 9.6 |
| Total demand, all oils | 6,491,000 | 5.7 |
| Total motor-fuel demand | 2,717,000 | 3.8 |
| Total middle-dist. demand | 1,398,500 | 13.6 |
| Total residual demand | 1,420,000 | 2.4 |
| Total exports | 310,000 | —5.4 |




TOTAL DEMAND FOR PETROLEUM PRODUCTS

## Table 1—Demand and Supply of Petroleum Products

(Barrels daily)

| | 1949* Quantity | 1949* Per cent increase over 1948 | 1950 forecast Quantity | 1950 forecast Per cent increase over 1949 |
|---|---|---|---|---|
| Motor fuel | 2,617,550 | 5.4 | 2,717,000 | 3.8 |
| Domestic | 2,505,870 | 5.3 | 2,622,000 | 4.7 |
| Exports | 111,680 | 9.3 | 95,000 | —14.9 |
| Kerosine | 288,780 | —8.6 | 319,300 | 10.6 |
| Domestic | 281,880 | —8.0 | 312,300 | 10.8 |
| Exports | 6,900 | —28.6 | 7,000 | 1.4 |
| Distillate fuels | 942,320 | —4.7 | 1,079,200 | 14.5 |
| Domestic | 908,160 | —2.3 | 1,046,700 | 15.3 |
| Exports | 34,160 | —42.7 | 32,500 | —4.9 |
| Residual | 1,387,160 | —1.1 | 1,420,000 | 2.4 |
| Domestic | 1,354,450 | —1.0 | 1,390,000 | 2.6 |
| Exports | 32,710 | —4.5 | 30,000 | —8.6 |
| Lubricants | 125,480 | —7.8 | 135,000 | 7.6 |
| Domestic | 90,940 | —8.5 | 100,000 | 10.0 |
| Exports | 34,540 | —2.7 | 35,000 | 1.3 |
| Wax | 8,930 | —2.2 | 8,580 | —3.9 |
| Domestic | 6,310 | —1.7 | 6,580 | 4.3 |
| Exports | 2,620 | —5.4 | 2,000 | —23.7 |
| L.P.G. domestic (including L.R.G.) | 184,130 | 4.9 | 195,000 | 5.9 |
| Asphalt and road oil, domestic | 156,560 | —0.9 | 166,000 | 6.0 |
| Miscellaneous products and losses | 300,540 | 2.4 | 303,420 | 1.0 |
| Domestic | 285,020 | 2.7 | 287,420 | 0.8 |
| Exports | 15,520 | —2.8 | 16,000 | 3.1 |
| Crude | 128,820 | —23.6 | 147,500 | 14.5 |
| Domestic (as such and losses) | 39,230 | —34.4 | 55,000 | 40.2 |
| Exports | 89,590 | —17.7 | 92,500 | 3.2 |
| Demand for all oils | 6,140,270 | 0.2 | 6,491,000 | 5.7 |
| Domestic | 5,812,550 | 0.9 | 6,181,000 | 6.3 |
| Exports | 327,720 | —11.1 | 310,000 | —5.4 |
| Stock changes: | | | | |
| Crude | +5,120 | | | |
| Products | —24,480 | | —2,000 | |
| Total new supply | 6,120,910 | —4.7 | 6,489,000 | 6.0 |
| Imports | 647,290 | 26.2 | 709,700 | 9.6 |
| Crude | 425,710 | 20.7 | 480,000 | 12.8 |
| Products | 221,580 | 36.4 | 229,700 | 3.7 |
| Domestic supply | 5,473,620 | —7.3 | 5,779,300 | 5.6 |
| Crude production | 5,048,110 | —6.4 | 5,340,500 | 5.8 |
| Other supply: | | | | |
| Natural gasoline (including benzol) | 425,510 | 6.8 | 438,800 | 3.4 |
| Crude run to stills | 5,318,800 | —4.9 | 5,648,000 | 6.1 |

*Fourth quarter estimated.

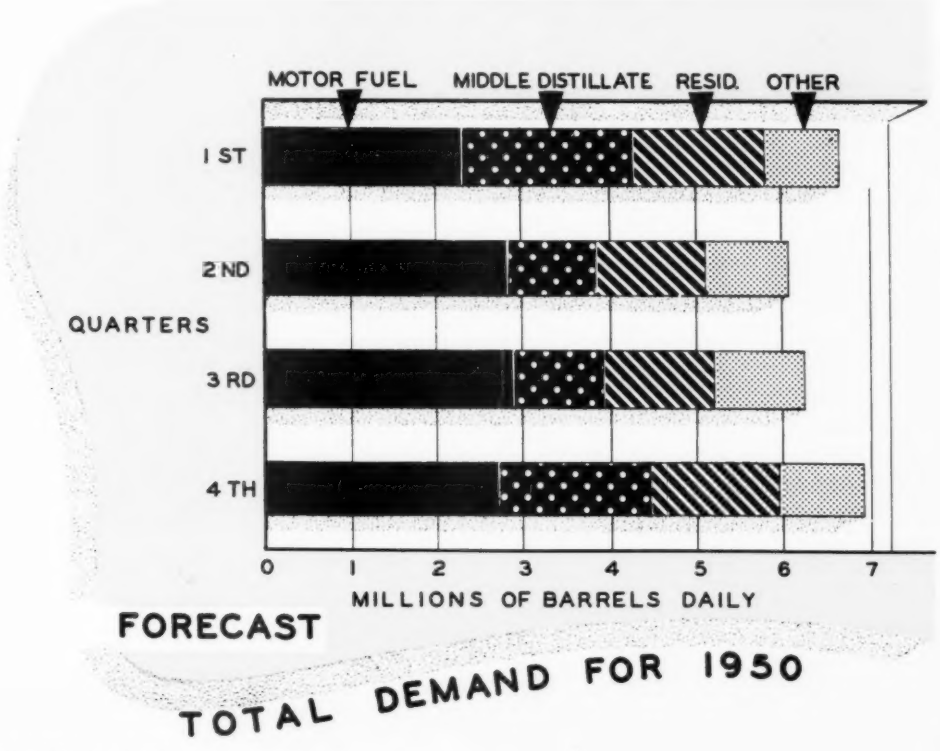
Those variations were caused by unforeseen events that occurred during 1949. For instance:

1. Temperatures in areas consuming the major portion of heating oils averaged 12 per cent warmer than normal.

2. Industrial production, as measured by the FRB Index of Industrial Production, was 10 per cent below forecast, mainly as a result of labor disputes.

3. Difficulties in foreign markets resulted from dollar shortages and changes in monetary standards in many countries.

Unexpected developments such as the foregoing, with their effects upon the petroleum industry, illustrate some of the pitfalls of forecasting precise



## Table 2—Demand and Supply of Petroleum Products

### 1950 Quarterly Forecast

(Barrels daily)

| | First quarter | | Second quarter | | Third quarter | | Fourth quarter | |
|---|---|---|---|---|---|---|---|---|
| | Quantity | Per cent increase over 1949 | Quantity | Per cent increase over 1949 | Quantity | Per cent increase over 1949 | Quantity | Per cent increase over 1949* |
| Motor fuel | 2,351,500 | 2.7 | 2,880,500 | 4.1 | 2,901,000 | 4.0 | 2,729,000 | 4.2 |
| Domestic | 2,256,500 | 4.6 | 2,785,500 | 5.5 | 2,806,000 | 4.3 | 2,634,000 | 4.1 |
| Exports | 95,000 | —27.9 | 95,000 | —25.4 | 95,000 | —3.2 | 95,000 | 5.6 |
| Kerosine | 429,200 | 12.3 | 211,300 | 17.3 | 225,300 | 7.7 | 412,600 | 7.3 |
| Domestic | 422,200 | 13.7 | 204,300 | 18.3 | 218,300 | 6.9 | 405,600 | 6.7 |
| Exports | 7,000 | —35.2 | 7,000 | —6.7 | 7,000 | 43.1 | 7,000 | 55.6 |
| Distillate fuels | 1,444,300 | 14.5 | 772,000 | 18.8 | 780,000 | 7.6 | 1,325,000 | 16.5 |
| Domestic | 1,409,300 | 16.4 | 742,000 | 20.1 | 750,000 | 7.6 | 1,290,000 | 16.2 |
| Exports | 35,000 | —25.8 | 30,000 | —5.9 | 30,000 | 7.8 | 35,000 | 27.3 |
| Residual | 1,570,000 | 2.0 | 1,260,000 | 2.8 | 1,310,000 | 3.6 | 1,542,000 | 1.4 |
| Domestic | 1,540,000 | 2.4 | 1,230,000 | 3.3 | 1,280,000 | 3.7 | 1,512,000 | 1.5 |
| Exports | 30,000 | —15.9 | 30,000 | —15.3 | 30,000 | 24.7 | 30,000 | 0.0 |
| Lubricants | 125,000 | 7.7 | 143,000 | 9.6 | 136,000 | 6.0 | 134,000 | 7.2 |
| Domestic | 90,000 | 12.2 | 103,000 | 11.6 | 103,000 | 7.2 | 104,000 | 9.5 |
| Exports | 35,000 | —2.3 | 40,000 | 4.7 | 35,000 | 2.4 | 30,000 | |
| Wax | 8,500 | —8.3 | 8,300 | 4.3 | 8,300 | —5.8 | 9,200 | —5.2 |
| Domestic | 6,500 | 10.7 | 6,300 | 19.5 | 6,300 | —4.2 | 7,200 | —4.0 |
| Exports | 2,000 | —41.2 | 2,000 | —25.7 | 2,000 | —10.3 | 2,000 | —9.1 |
| L.P.G. domestic (including L.R.G.) | 210,000 | 9.4 | 170,000 | 5.5 | 180,000 | 3.8 | 220,000 | 4.8 |
| Asphalt and road oil, domestic | 92,500 | 26.0 | 175,000 | 3.3 | 250,000 | 0.1 | 145,000 | 9.8 |
| Miscellaneous products and losses | 286,000 | 0.8 | 316,000 | —2.7 | 316,000 | 2.6 | 295,500 | 3.7 |
| Domestic | 270,000 | 0.6 | 300,000 | —2.8 | 300,000 | 2.4 | 279,500 | 3.5 |
| Exports | 16,000 | 0.4 | 16,000 | —0.5 | 16,000 | 6.1 | 16,000 | 6.7 |
| Crude | 140,000 | 73.3 | 155,000 | 30.2 | 155,000 | —5.7 | 140,000 | —6.7 |
| Domestic (as such and losses) | 50,000 | 137.4 | 60,000 | 342.2 | 60,000 | —11.4 | 50,000 | —16.7 |
| Exports | 90,000 | 36.5 | 95,000 | —9.1 | 95,000 | —1.7 | 90,000 | 0.0 |
| Demand for all oils | 6,657,000 | 6.9 | 6,091,100 | 6.2 | 6,263,600 | 4.0 | 6,952,300 | 5.8 |
| Domestic | 6,347,000 | 8.0 | 5,776,100 | 7.5 | 5,953,600 | 4.2 | 6,647,300 | 5.8 |
| Exports | 310,000 | —11.2 | 315,000 | —13.6 | 310,000 | 0.4 | 305,000 | 5.5 |
| Stock changes: | | | | | | | | |
| Crude | | | | | | | | |
| Products | —270,000 | | +260,000 | | +290,000 | | —291,000 | |
| Total new supply | 6,387,000 | 0.9 | 6,351,100 | 6.7 | 6,553,600 | 12.1 | 6,661,300 | 4.8 |
| Imports | 790,000 | 36.4 | 660,000 | 12.4 | 670,000 | 8.0 | 720,000 | —10.0 |
| Crude | 480,000 | 15.7 | 480,000 | 19.3 | 480,000 | 18.5 | 480,000 | 0.0 |
| Products | 310,000 | 88.3 | 180,000 | —2.7 | 190,000 | —11.7 | 240,000 | —25.0 |
| Domestic supply | 5,597,000 | —2.7 | 5,691,100 | 6.0 | 5,883,600 | 12.5 | 5,941,300 | 7.0 |
| Crude production | 5,157,000 | —3.2 | 5,266,100 | 6.1 | 5,453,600 | 13.5 | 5,481,300 | 7.5 |
| Other Supply: | | | | | | | | |
| Natural gasoline (including benzol) | 440,000 | 4.6 | 425,000 | 5.1 | 430,000 | 1.9 | 460,000 | 1.1 |
| Crude run to stills | 5,472,000 | —0.4 | 5,566,100 | 7.7 | 5,753,600 | 9.0 | 5,796,300 | 8.6 |

*Fourth quarter 1949 estimated.

volumetric data even when basic trends have been properly considered. But since trends cannot be indicated without numerical data, the following tables are presented as approximations of demands and supply of petroleum products in the United States for the year 1950.

### Several Assumptions Necessary

In addition to the facts included in the many basic tables of this report, this forecast also considers the following assumptions:

1. That the degree-day heat requirements of the nation's oil burners will be normal.

2. That industrial activity in 1950 will be somewhat greater than in the year just ended, and strikes which plagued industry during recent months will be less prevalent.

If during 1950:

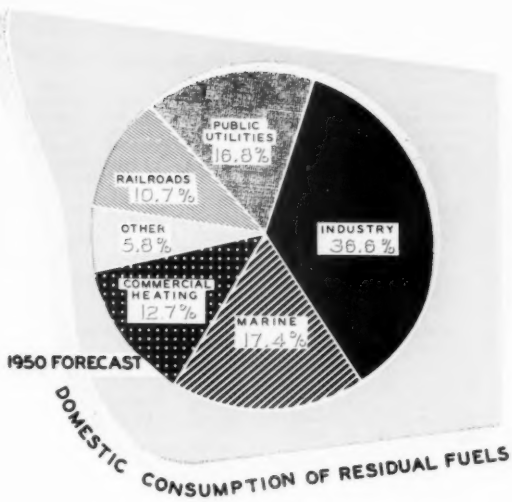
1. Anticipated demands for specific products are realized;

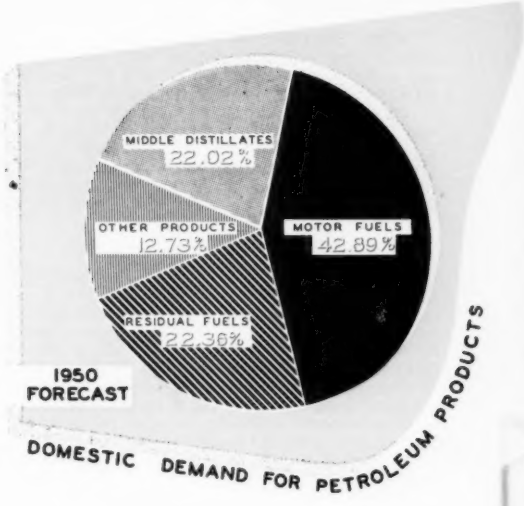
2. Aboveground stocks of crude oil and products at the end of the year approximate current levels; and

3. Exchange of crude oil and petroleum products with foreign nations follow closely the trends here indicated,

Then: The domestic supply of all oils will average 5,779,000 bbl. daily throughout the year, of which 5,340,000 bbl. daily will be crude-oil production. That rate of production will be 5.8 per cent greater than the average for 1949.

Furthermore, realizations of those basic projections will require the United States refineries to process, on the average, approximately 5,648,000 bbl. of crude oil daily. That level of operations will be 6.1 per cent greater than the 1949 daily average




crude runs to stills and 5.8 per cent, or 312,000 bbl. daily above the preliminary level of operations during the fourth quarter of 1949.

Discussion of the basic factors employed in projecting domestic demands for specific products follows:

**Motor fuels.**—The domestic demand for motor fuels is forecast to exceed the 1949 level by 116,000 bbl. daily, or 4.7 per cent, and will average 2,622,000 bbl. daily during 1950.

In addition it is expected that exports in 1950 may average only 95,000 bbl. daily and that total demand of 2,717,000 bbl. daily will be 3.8 per cent more than during 1949.

The anticipated rates of growth in the use of highway vehicles and the volumes of fuels which these vehicles will require are shown in Tables 3 and 4 respectively. It is expected that passenger-car registrations will increase by 5.7 per cent during 1950 as contrasted with an annual increase of 8.3 per cent during the 1946-49 period. The 1950 truck registrations are expected to be 3.6 per cent greater than in 1949; during the previous 3 years the average annual rate of increase was 10.5 per cent. Factory sales of motor vehicles in 1950 will probably equal the 1949 indicated sales, but a larger proportion of those sales will be required to replace cars that have outlived their usefulness.

**Highway Vehicles Up 5.3 Per Cent**

Highway vehicles are expected to consume liquid fuels at an average rate of 2,208,070 bbl. daily during 1950. Vehicle requirements for motor fuel of 2,187,000 bbl. daily will be 5.3 per cent greater than the 1949 demand; 21,070 bbl. daily of diesel fuels will be consumed on our nation's highways by buses and trucks.

The facts presented in Tables 3 and 4 indicate the growing importance of diesel engines in the automotive economy. Although diesel oil still comprises only a small segment of the total requirements for fuels consumed on our highways, it is expected to become increasingly important in the future.

(The basic statistics related to liquid fuel consuming units in operation vary to a minor degree from those previously presented. Data now employed are considered more authoritative.)

Forecast requirements for nonhighway uses of gasoline and naphthas are presented in Table 5.

**TABLE 3—PASSENGER CARS IN UNITED STATES**
**(In Thousands)**

| | Registration end of year | Vehicles exempt from registration | Factory sales domestic market | Misc. supply | Units scrapped | Average in use |
|---|---|---|---|---|---|---|
| 1941 | 29,524 | 75 | 3,682 | | 1,528 | 28,521 |
| 1945 | 25,691 | 102 | 68 | 4 | —155 | 25,680 |
| 1946 | 28,100 | 113 | 2,005 | 11 | —404 | 27,003 |
| 1947 | 30,719 | 126 | 3,297 | 10 | 676 | 29,529 |
| 1948 | 33,261 | 137 | 3,676 | 28 | 1,151 | 32,122 |
| 1949* | 35,690 | 140 | 5,100 | 32 | 2,700 | 34,614 |
| 1950 | 37,725 | 140 | 5,000 | 35 | 3,000 | 36,848 |

**TABLE 3A—TRUCKS IN UNITED STATES**
**(In Thousands)**

| | Registration end of year | Vehicles exempt from registration | Factory sales domestic market | Misc. supply | Units scrapped | Average in use—Total | Average in use—Diesel* | Average in use—Gasoline |
|---|---|---|---|---|---|---|---|---|
| 1941 | 4,859 | 210 | 743 | | 514 | 4,954 | | |
| 1945 | 4,835 | 242 | 254 | 96 | 34 | 4,969 | 10 | 4,959 |
| 1946 | 5,726 | 260 | 753 | 139 | —16 | 5,532 | 12 | 5,520 |
| 1947 | 6,512 | 296 | 988 | 60 | 226 | 6,397 | 14 | 6,383 |
| 1948 | 7,227 | 328 | 1,173 | 1 | 427 | 7,182 | 17 | 7,165 |
| 1949* | 7,615 | 330 | 1,040 | | 650 | 7,750 | 22 | 7,728 |
| 1950 | 7,885 | 330 | 1,000 | | 720 | 8,085 | 30 | 8,055 |

**TABLE 3B—BUSES IN UNITED STATES**
**(In Thousands)**

| | In use end of year | Sale of buses | Units scrapped | Average in use—Total | Average in use—Diesel* | Average in use—Gasoline |
|---|---|---|---|---|---|---|
| 1941 | 146 | 17 | 13 | 144 | | 144 |
| 1945 | 159 | 18 | 18 | 157 | 14 | 143 |
| 1946 | 162 | 24 | 21 | 161 | 16 | 145 |
| 1947 | 175 | 39 | 28 | 168 | 20 | 148 |
| 1948 | 183 | 32 | 24 | 179 | 26 | 153 |
| 1949* | 188 | 25 | 20 | 185 | 31 | 154 |
| 1950 | 190 | 22 | 20 | 189 | 36 | 153 |

*Estimated.

**Middle distillates.**—It is forecast that the domestic demands for middle distillates will total 1,359,000 bbl. daily, 169,000 bbl. daily, or 14.2 per cent, more than the indicated domestic demand in 1949.

The demands for the component parts of the middle distillate group are shown in Table 6.

It is expected that in 1950 demands for diesel fuels will be 11 per cent greater than in 1949; kerosine requirements will be 11 per cent greater; and demands for all other distillates will be 17 per cent above the 1949 level.

### Consumption of Middle Distillates

Consumption of middle distillates by various consumer categories is presented in Table 7. That table indicates that home heating requirements will increase in 1950 to a level 20 per cent above the 1949 estimated requirements for home heating oils. This rate of increase results from the assumption that weather conditions will be normal in 1950 and from the trend in oil burners in use as presented in Table 8.

(Statistics pertaining to demands for middle distillates as commonly employed throughout the industry reflect the shipments of those products from the industry's supply centers and are not truly consumption data. Any changes in the stocks of the secondary suppliers alter greatly the level of indicated shipments. The level of stocks held by secondary suppliers may often influence the appraisals made of the adequacy of stock levels as reported currently.)

**Residual fuels.**—The domestic demands for residual fuels of 1,390,000 bbl. daily as projected for 1950 will be 2.6 per cent or 35,550 bbl. daily above the estimated 1949 domestic demand. Although the increase in total domestic demand may not be significant, certain categories of consumers will require markedly more supplies in 1950 than in 1949. The anticipated level of domestic demand results from the forecast demands of specific classes of consumers shown in Table 9, where it will be noted that railroad consumption of residual fuels is expected to continue to decline, as it has during the last 2 years, as a result in part from the growth in the use of diesel engines by the railroads. The 1950 consumption of residual fuels for electric-power generation should continue at a high level as a result of the current relationship of fuel-oil prices to those of bituminous coal. This same factor, in combination with greater industrial production, is expected to expand the volume of residual fuel required by mines and manufacturers. On the other hand, dollar shortages in foreign countries and recent devaluation in foreign currencies will probably tend to decrease the domestic rate of bunkering of vessels in foreign trade.

**TABLE 4—FUELS CONSUMED BY HIGHWAY VEHICLES**
(Barrels daily)

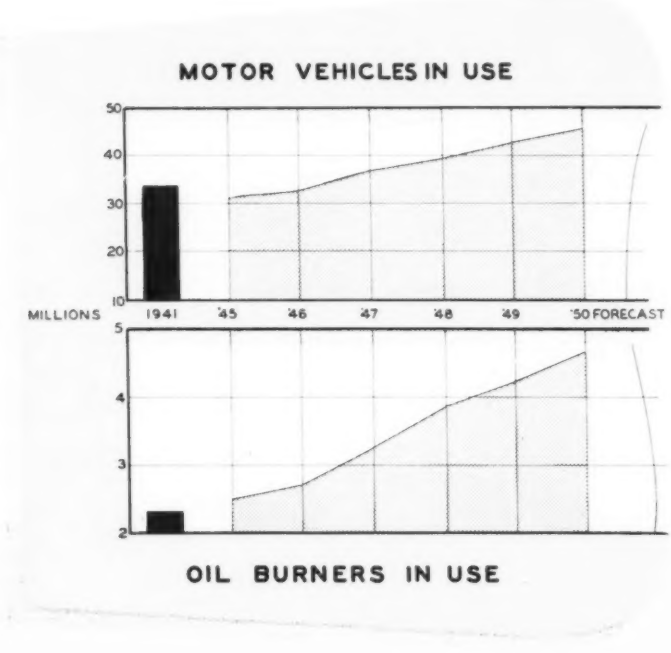
| | 1948 | 1949* | 1950 Forecast |
|---|---|---|---|
| **Motor fuel:** | | | |
| Passenger cars | 1,386,690 | 1,477,460 | 1,565,000 |
| Trucks | 528,570 | 558,640 | 582,500 |
| Buses | 40,600 | 39,660 | 39,500 |
| Total motor fuel | 1,955,860 | 2,075,760 | 2,187,000 |
| **Diesel fuel:** | | | |
| Trucks | 3,320 | 4,310 | 5,880 |
| Buses | 10,940 | 13,080 | 15,190 |
| Total diesel fuel | 14,260 | 17,390 | 21,070 |

*Preliminary.

**TABLE 5—DOMESTIC CONSUMPTION OF GASOLINE**
(Barrels daily)

| | 1948 | 1949* | 1950 Forecast |
|---|---|---|---|
| Highway consumption of motor fuel (Table 4) | 1,955,860 | 2,075,760 | 2,187,000 |
| Agricultural nonhighway | 184,620 | 189,650 | 192,500 |
| Industrial use of motor fuel | 69,210 | 67,120 | 70,000 |
| Miscellaneous† | 32,430 | 42,500 | 35,000 |
| Total motor fuel | 2,242,120 | 2,375,030 | 2,484,500 |
| Aviation gasoline† | 88,120 | 87,000 | 90,000 |
| Industrial naphthas | 50,090 | 43,840 | 47,500 |
| Total | 2,380,330 | 2,505,870 | 2,622,000 |

*Preliminary. †Includes government use.




**Lubricants.**—It is expected that domestic requirements for lubricating oils (including additives) will be 103,500 bbl. daily, or 10 per cent more than the 1949 average.

(Demands for lubricants as published by the Bureau of Mines and by the petroleum industry to gage the level of operations in the lubricating-oil economy do not consider the volume of material often added to lubricating base material to provide a finishing lubricating oil. For that reason the author has made use of some significant data not heretofore available in order to present a more comprehensive picture of lubri-

**TABLE 6—COMPONENT PARTS OF MIDDLE-DISTILLATE DOMESTIC DEMAND**
(Barrels daily)

| | 1948 | 1949* | 1950 Forecast |
|---|---|---|---|
| Kerosine | 306,460 | 281,880 | 312,300 |
| Distillate fuels | 687,940 | 654,630 | 765,000 |
| Diesel fuels | 241,150 | 253,530 | 281,700 |
| Total | 1,235,550 | 1,190,040 | 1,359,000 |

*Preliminary.

**TABLE 7—DOMESTIC CONSUMPTION OF MIDDLE DISTILLATES**
(Barrels daily)

| | 1948 | 1949* | 1950 Forecast |
|---|---|---|---|
| Range oil | 229,950 | 207,430 | 237,120 |
| Home heating oil | 546,520 | 517,000 | 621,410 |
| Agricultural: | | | |
| Tractor | 28,260 | 26,920 | 24,570 |
| Other (inc. tobacco curing) | 6,150 | 6,710 | 7,000 |
| Railroad: | | | |
| Distillate | 6,640 | 6,300 | 6,500 |
| Diesel | 78,080 | 101,430 | 126,000 |
| Public utilities: | | | |
| Distillate | 20,600 | 19,560 | 19,200 |
| Diesel | 19,990 | 20,040 | 20,000 |
| Marine: | | | |
| Distillate | 2,140 | 2,190 | 2,200 |
| Diesel | 37,510 | 37,530 | 37,530 |
| Truck and buses: | | | |
| Diesel (Table 4) | 14,260 | 17,390 | 21,070 |
| Industrial (incl. Oil Co.): | | | |
| Distillate | 55,940 | 46,000 | 51,000 |
| Diesel | 35,750 | 32,880 | 36,700 |
| Government: | | | |
| Distillate | 5,030 | 5,480 | 4,100 |
| Diesel | 14,740 | 15,070 | 11,000 |
| Jet fuel | 5,170 | 9,300 | 12,600 |
| Miscellaneous: | | | |
| Distillate (inc. kerosine) | 95,440 | 89,620 | 92,000 |
| Diesel | 29,380 | 29,190 | 29,000 |
| Total | 1,235,550 | 1,190,040 | 1,359,000 |

*Preliminary.

**TABLE 8—OIL BURNERS FOR HOME HEATING**
(In Thousands)

| | In use end of year | Domestic sales | Indicated scrappage | Average in use |
|---|---|---|---|---|
| 1941 | 2,402 | 333 | 66 | 2,269 |
| 1945 | 2,517 | 146 | 21 | 2,455 |
| 1946 | 2,821 | 492 | 188 | 2,669 |
| 1947 | 3,650 | 888 | 59 | 3,236 |
| 1948 | 3,976 | 455 | 130 | 3,813 |
| 1949* | 4,425 | 580 | 130 | 4,200 |
| 1950 | 4,840 | 550 | 135 | 4,633 |

*Estimated.

eating-oil requirements. That picture is presented in Table 10. It shows the demand of certain segments of the lubricating-oil market based upon partially estimated data. The item of greatest importance to petroleum refiners is the supply of lubricants (base stocks) required for production from crude petroleum.)

**Liquefied petroleum gases.** — Table 11 indicates the volumes of L.P.G. consumed by the various categories of consumers during the last 3 years (1949 estimated) and a forecast of demands for 1950.

During recent years some products have enjoyed a differential growth which has increased their importance in the petroleum economy. It is now expected that the rate of growth of some of these products will be more moderate; in some instances absolute decreases in demand may result from more efficient use of those products by consumers.

The relative importance of demands for specific petroleum products domestically is presented in Table 12.

If trends in petroleum demands and industry operations as outlined in the foregoing text and tables are realized during 1950, supplies of raw material and finished products should be ample to permit economical operation.

**TABLE 9—RESIDUAL FUELS**
(Barrels daily)

| | 1948 | 1949* | 1950 Forecast |
|---|---|---|---|
| Commercial heating | 160,220 | 155,900 | 175,500 |
| Railroads | 244,780 | 171,220 | 148,000 |
| Public utilities | 155,220 | 219,790 | 231,000 |
| Industry (Inc. Oil Co.) | 472,990 | 488,910 | 515,000 |
| Marine | 261,660 | 246,580 | 240,000 |
| Government | 55,220 | 53,420 | 61,000 |
| Miscellaneous | 18,100 | 18,630 | 19,500 |
| Total | 1,368,190 | 1,354,450 | 1,390,000 |

*Preliminary.

**TABLE 10—DOMESTIC CONSUMPTION OF LUBRICANTS**
(Barrels daily)

| | 1948 | 1949* | 1950 Forecast |
|---|---|---|---|
| Automotive motor oils | 55,570 | 57,510 | 58,300 |
| Aviation motor oils | 1,050 | 1,040 | 1,100 |
| Total motor oils | 56,620 | 58,550 | 59,400 |
| Mobile diesel-engine lubes | 3,230 | 3,690 | 4,100 |
| Industrial lubes | 42,620 | 31,900 | 40,000 |
| Domestic consumption | 102,470 | 94,140 | 103,500 |
| Export | 35,490 | 34,540 | 35,000 |
| Total demand | 137,960 | 128,680 | 138,500 |
| Additional segment of total demand† | 3,060 | 3,200 | 3,500 |
| Supply required from petroleum processing | 134,900 | 125,480 | 135,000 |

*Preliminary. †Estimated.

**TABLE 11—DOMESTIC SALES OF LIQUEFIED PETROLEUM GASES**
(Barrels daily)

| | 1947 | 1948 | 1949* | 1950 Forecast |
|---|---|---|---|---|
| Home uses | 75,050 | 95,840 | 103,430 | 112,800 |
| Gas manufacturers | 11,050 | 15,460 | 15,000 | 14,500 |
| Industrial fuel | 11,320 | 13,980 | 15,000 | 16,000 |
| Chemical industries | 40,170 | 43,960 | 45,000 | 46,000 |
| Internal-combustion Engines | 6,510 | 6,050 | 5,500 | 5,500 |
| Unaccounted for | 280 | 160 | 200 | 200 |
| Total | 144,380 | 175,450 | 184,130 | 195,000 |

*Preliminary.

**TABLE 12—DOMESTIC DEMAND FOR SPECIFIC PETROLEUM PRODUCTS AS PER CENT OF TOTAL DOMESTIC DEMAND**

| | 1941 | 1948 | 1949* | 1950 Forecast |
|---|---|---|---|---|
| Motor fuel | 44.92 | 41.32 | 43.11 | 42.42 |
| Middle distillates | 16.31 | 21.45 | 20.47 | 21.99 |
| Residual fuel | 25.81 | 23.75 | 23.30 | 22.49 |
| Lubricants and waxes | 2.16 | 1.84 | 1.67 | 1.72 |
| L.P.G. | .74 | 3.05 | 3.17 | 3.15 |
| Misc. and losses | 10.06 | 8.59 | 8.28 | 8.23 |
| Total | 100.00 | 100.00 | 100.00 | 100.00 |

*Preliminary.

# Refining Record Better Than All-Industries Average in 1949

**by John C. Casper**

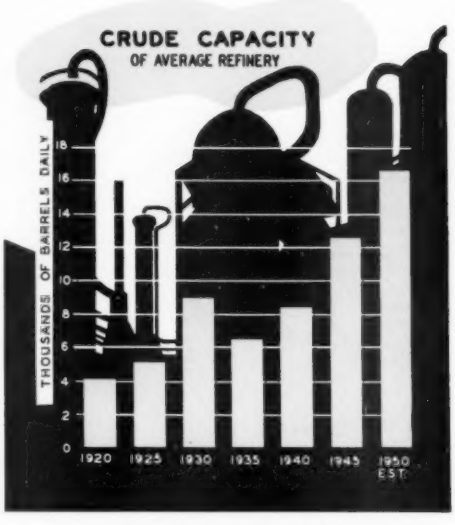
PETROLEUM refining in 1949 had a better production record than the average for all types of manufacturing in the country. Crude runs averaged 5,324,000 bbl. daily in 1949, a reduction of 4.8 per cent from the record set in 1948. Total manufacturing production was about 8 or 9 per cent below 1948, according to National Association of Manufacturers.

Crude runs in 1948 increased 515,000 bbl. daily over 1947 but 214,000 bbl. daily of this gain was used to rebuild depleted product stocks. If this production-for-inventory is deducted from the 1948 runs, then the difference between 1948 and 1949 is only about 52,000 bbl. daily, or less than 1 per cent.

The satisfactory production rate for all industry in 1950 has been estimated at 5 to 10 per cent, either way, from the 1949 level. Crude runs for 1950 are expected to be about 5 per cent greater than last year.

The outstanding change in refinery operations for the past year was the increase in percentage yield of gasoline to meet the increased demand for motor fuel.

In the past 30 years, gasoline yields have moved up from 25 per cent of crude runs to over 43 per cent, with most of the change coming before 1930. In the same period, kerosine yields dropped from



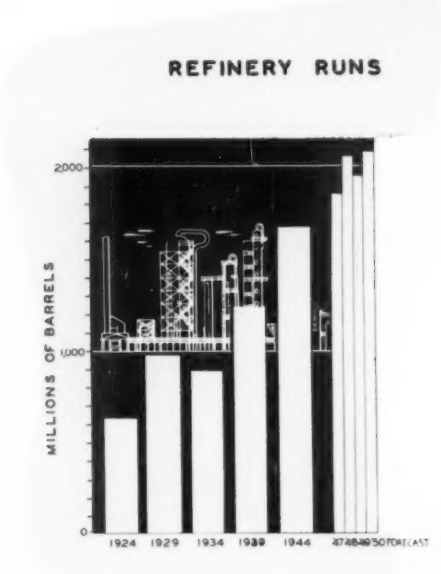




TABLE 1—REFINERY YIELDS
(Per cent)

| | Gasoline | Kerosine | Distillate* | Residual* |
|---|---|---|---|---|
| 1918 | 25.3 | 13.3 | 53.5 | |
| 1919 | 25.2 | 15.4 | 50.2 | |
| 1920 | 26.1 | 12.7 | 48.6 | |
| 1921 | 27.1 | 10.5 | 51.9 | |
| 1922 | 28.8 | 11.0 | 50.9 | |
| 1923 | 30.0 | 9.6 | 49.5 | |
| 1924 | 31.2 | 9.3 | 49.8 | |
| 1925 | 32.4 | 8.1 | 49.3 | |
| 1926 | 34.9 | 7.9 | 46.8 | |
| 1927 | 36.0 | 6.8 | 47.4 | |
| 1928 | 37.4 | 6.6 | 46.8 | |
| 1929 | 39.4 | 5.8 | 45.6 | |
| 1930 | 42.0 | 5.3 | 8.8 | 31.4 |
| 1931 | 44.3 | 4.7 | 9.4 | 28.3 |
| 1932 | 44.7 | 5.3 | 8.5 | 27.5 |
| 1933 | 43.7 | 5.7 | 9.2 | 27.6 |
| 1934 | 43.4 | 6.0 | 10.6 | 26.8 |
| 1935 | 44.2 | 5.8 | 10.4 | 26.9 |
| 1936 | 44.1 | 5.2 | 11.8 | 27.0 |
| 1937 | 43.9 | 5.5 | 12.4 | 26.4 |
| 1938 | 44.3 | 5.5 | 13.0 | 25.3 |
| 1939 | 45.0 | 5.5 | 13.1 | 24.7 |
| 1940 | 43.1 | 5.7 | 14.2 | 24.4 |
| 1941 | 44.2 | 5.2 | 13.4 | 24.3 |
| 1942 | 39.8 | 5.1 | 14.7 | 26.9 |
| 1943 | 37.1 | 5.0 | 14.8 | 29.2 |
| 1944 | 39.4 | 4.7 | 14.4 | 27.7 |
| 1945 | 40.9 | 4.7 | 14.5 | 27.3 |
| 1946 | 39.6 | 6.0 | 16.6 | 24.9 |
| 1947 | 40.2 | 6.0 | 16.8 | 24.2 |
| 1948 | 40.3 | 6.0 | 18.7 | 22.9 |
| 1949 | 43.8 | 5.2 | 17.5 | 21.7 |

*Refinery data for distillate and residual not separated until 1930.

TABLE 2—REFINERY RUNS BY DISTRICTS
(Thousands of barrels daily)

| | 1924 | 1929 | 1934 | 1939 | 1944 | 1947 | 1948 | †1949 |
|---|---|---|---|---|---|---|---|---|
| East Coast | 369 | 472 | 471 | 527 | 702 | 815 | 867 | 768 |
| Appalachian | 60 | 93 | 98 | 120 | 154 | 166 | 157 | 155 |
| Illinois, Indiana, etc. | 154 | 302 | 326 | 525 | 762 | 826 | 908 | 913 |
| Oklahoma, Kansas, Missouri | 218 | 316 | 260 | 308 | 364 | 419 | 452 | 424 |
| Texas Inland | 85 | 160 | 170 | 179 | 225 | 232 | 245 | 218 |
| Texas Gulf | 257 | 420 | 492 | 915 | 1,119 | 1,197 | 1,392 | 1,284 |
| Louisiana Gulf | 100 | 139 | 113 | 133 | 231 | 383 | 435 | 432 |
| North Louisiana, Arkansas | 35 | 68 | 52 | 68 | 77 | 68 | 76 | 75 |
| Rocky Mountain | 73 | 70 | 44 | 72 | 113 | 143 | 163 | 177 |
| California | 408 | 666 | 428 | 544 | 804 | 826 | *895 | 878 |
| Total United States | 1,759 | 2,706 | 2,454 | 3,391 | 4,551 | 5,075 | 5,590 | 5,324 |

*New basis in California. Runs on old basis were 848,500 bbl. daily. †Ten months actual, 2 months estimated.

TABLE 3—DISTRICTS PER CENT OF TOTAL UNITED STATES RUNS

| | 1924 | 1929 | 1934 | 1939 | 1944 | 1947 | 1948 | 1949 |
|---|---|---|---|---|---|---|---|---|
| East Coast | 21.0 | 17.5 | 19.2 | 15.6 | 15.4 | 16.0 | 15.5 | 14.4 |
| Appalachian | 3.4 | 3.4 | 4.0 | 3.5 | 3.4 | 3.3 | 2.8 | 2.9 |
| Illinois, Indiana, etc. | 8.8 | 11.2 | 13.3 | 15.5 | 16.7 | 16.3 | 16.2 | 17.2 |
| Oklahoma, Kansas, Missouri | 12.4 | 11.7 | 10.6 | 9.1 | 8.0 | 8.3 | 8.1 | 8.0 |
| Texas Inland | 4.8 | 5.9 | 6.9 | 5.3 | 5.0 | 4.6 | 4.4 | 4.1 |
| Texas Gulf | 14.6 | 15.5 | 20.0 | 27.0 | 24.6 | 23.6 | 24.9 | 24.1 |
| Louisiana Gulf | 5.7 | 5.1 | 4.6 | 3.9 | 5.0 | 7.5 | 7.8 | 8.1 |
| North Louisiana, Arkansas | 2.0 | 2.5 | 2.1 | 2.0 | 1.7 | 1.3 | 1.4 | 1.4 |
| Rocky Mountain | 4.1 | 2.6 | 1.8 | 2.1 | 2.5 | 2.8 | 2.9 | 3.3 |
| California | 23.2 | 24.6 | 17.5 | 16.0 | 17.7 | 16.3 | 16.0 | 16.5 |
| Total United States | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

about 15 to 5 per cent. The major shift in recent years has been the increase in distillate yields to meet big demands for heating and diesel fuels.

Distillate production data are not available for years prior to 1930 but in that year distillate yields amounted to 8.8 per cent of crude runs. Warm weather in the winter months of 1949 resulted in a slight reduction in distillate yields but still refiners made twice as much distillate from each barrel of crude as in 1930.

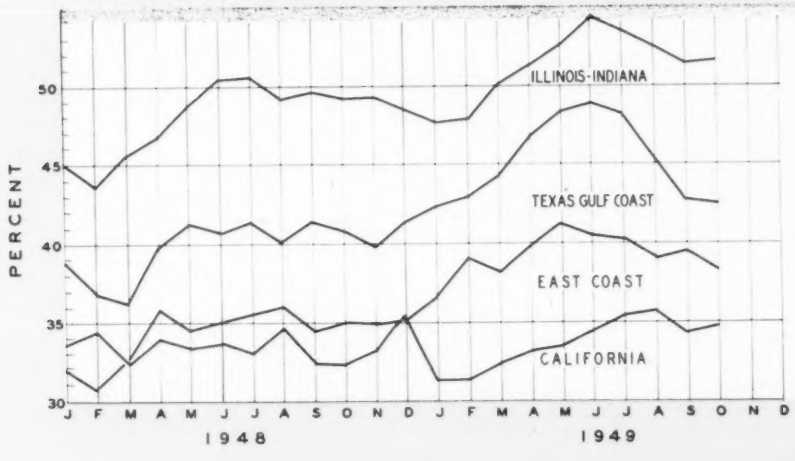
Increased use of motor transportation has resulted in a big drive for better gasolines, with most of the improvement coming in the past 10 years. At the beginning of 1940, only six refineries were using catalytic cracking and the total gas-oil-charge capacity amounted to only 122,000 bbl. daily. The current capacity is more than 1,500,000 bbl. daily, with the present trend toward installation of units in smaller refineries.

Another long-term trend in refinery operations has been the shift to larger units. In 1920 there were 373 refineries in this country, only a few less than the total at the end of 1949, but the average capacity was only 4,100 bbl. daily compared with the current average of almost 17,000 bbl. daily.

Keen competition in the industry has forced certain changes in activity by districts. The Gulf Coast area, with tanker transportation available for either crude or products, accounted for over 24 per cent of total runs in 1949 compared with 14.6 per cent in 1924. East Coast runs dropped from 21 per cent of the total in 1924 to 14.4 per cent in 1949.

A reversed situation for supplier-consumer districts is found in the relative reduction for Oklahoma-Kansas and the gain by Illinois-Indiana. This resulted from the difference in costs of crude movement by pipe line and product movement by a combination of pipe line and rail.

## GASOLINE YIELDS ..... BY DISTRICTS



# Light-Hydrocarbon Production Sets Another All-Time Record

**by John C. Casper**

PRODUCTION of light hydrocarbons at natural-gasoline and cycling plants in 1949 averaged 17,877,000 gal. daily to set another all-time record for this branch of the petroleum industry. This represents an increase of 7.1 per cent over 1948, in contrast with a decrease of more than 8 per cent in crude production.

Another increase is forecast for 1950 with average production for the year estimated at 18,640,000 gal. daily. However, the downward trend in percentage gains by years seems to indicate a leveling off in demand and production. The greatest relative increase was in 1947, a gain of 14.2 per cent, followed by 9.8 per cent in 1948, 7.1 per cent in 1949, and a forecast increase of 4.3 per cent for 1950.

Texas, with 45.3 per cent of total production, accounted for 631,000 gal. daily, or 53.3 per cent of the total increase for 1949. Recent additions to capacity in Oklahoma gave that state its greatest postwar increase and made it the top ranking state on a basis of percentage gain over 1948, 12.9 per cent compared with 7.1 per cent for the country as a whole.

In the product breakdown of total output, L.P.G. had the largest increase in production, up 587,000 gal. daily or almost half of the total gain. Natural-gasoline production increased 192,000 gal. daily or 2.4 per cent over 1948.

More flexible operations, resulting from the improved design in the large number of plants added since the war, has made possible the rapid increase in production of other products, mostly finished gasoline and naphtha. Production under this classification increased 404,000 gal. daily in 1949, a gain of 15.1 per cent. In 1941, these products represented 14.2 per cent of total production but by 1949 had moved up to 17.2 per cent of the total.

The importance of L.P.G. in the development of the light-hydrocarbon program is shown by the relative gain since 1941. In that year only 20.8 per cent of total plant output was L.P.G. but in 1949 these liquefied gases accounted for 36.6 per cent of the total.

Natural-gasoline production has increased every year since 1942 but the gains have not been as great as those recorded for other light products. Production of natural gasoline increased 36 per cent between 1941 and 1949, compared with increases of

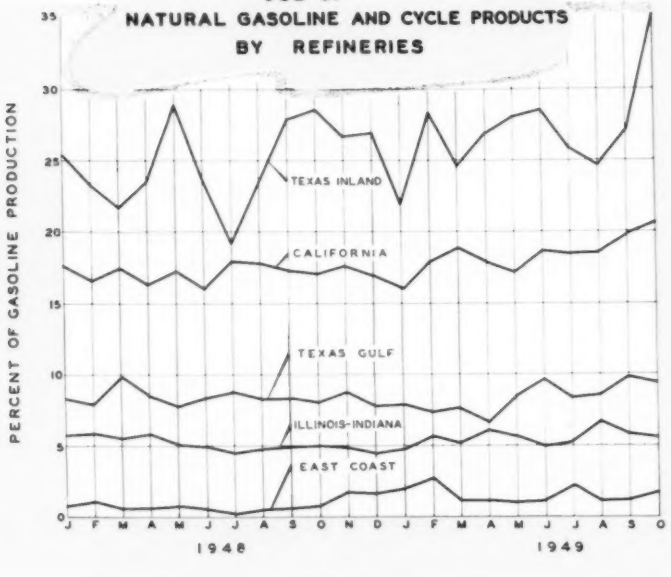


TABLE 1—PRODUCTION OF NATURAL GASOLINE AND CYCLE PRODUCTS BY STATES
(Thousands of gallons daily)

| | Texas | California | Louisiana | Oklahoma | Other | Total |
|---|---|---|---|---|---|---|
| 1941 | 4,272 | 1,807 | 618 | 1,242 | 1,365 | 9,304 |
| 1942 | 4,295 | 1,735 | 811 | 1,219 | 1,527 | 9,587 |
| 1943 | 4,510 | 1,899 | 839 | 1,157 | 1,588 | 10,093 |
| 1944 | 5,108 | 2,107 | 1,346 | 1,152 | 1,767 | 11,480 |
| 1945 | 5,995 | 2,443 | 1,505 | 1,140 | 1,805 | 12,888 |
| 1946 | 6,255 | 2,494 | 1,553 | 1,137 | 1,879 | 13,318 |
| 1947 | 7,231 | 2,915 | 1,723 | 1,223 | 2,117 | 15,209 |
| 1948 | 8,154 | 3,047 | 1,935 | 1,288 | 2,270 | 16,694 |
| *1949 | 8,785 | 3,151 | 2,102 | 1,454 | 2,385 | 17,877 |

*Ten months actual, 2 months estimated.

TABLE 2—PRODUCTION BY NATURAL-GASOLINE AND CYCLING PLANTS

| | Natural gasoline | L.P.G. | Other products | Total | Per cent Increase |
|---|---|---|---|---|---|
| 1941 | 6,050 | 1,938 | 1,316 | 9,304 | |
| 1942 | 5,674 | 2,119 | 1,794 | 9,587 | 3.0 |
| 1943 | 5,796 | 2,495 | 1,802 | 10,093 | 5.3 |
| 1944 | 5,979 | 3,198 | 2,303 | 11,480 | 13.7 |
| 1945 | 6,846 | 3,872 | 2,170 | 12,888 | 12.3 |
| 1946 | 7,372 | 3,861 | 2,085 | 13,318 | 3.3 |
| 1947 | 7,517 | 5,183 | 2,509 | 15,209 | 14.2 |
| 1948 | 8,063 | 5,958 | 2,673 | 16,694 | 9.8 |
| *1949 | 8,255 | 6,545 | 3,077 | 17,877 | 7.1 |
| †1950 | 8,450 | 7,000 | 3,190 | 18,640 | 4.3 |

*Ten months actual, 2 months estimated. †Forecast.

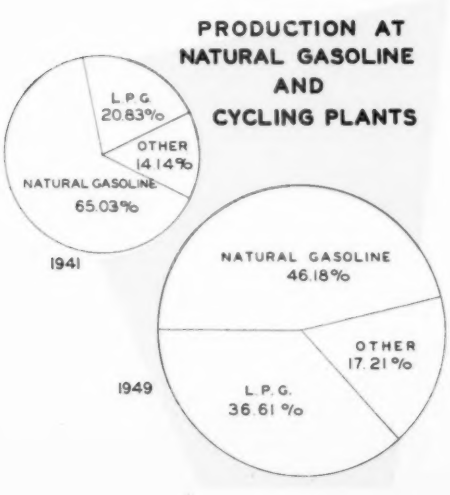
238 per cent for L.P.G. and 134 per cent for other products.

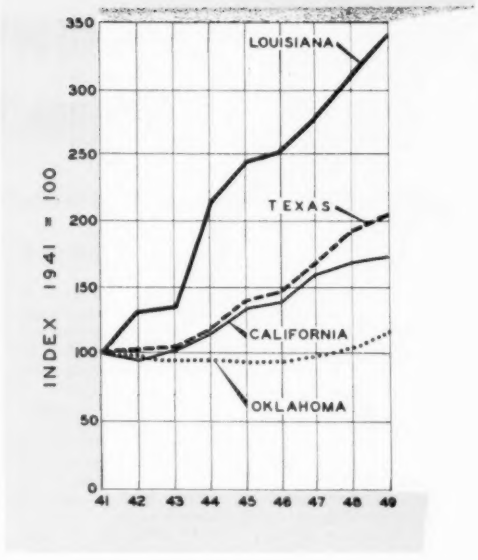
The big gains in over-all production of light products have resulted from two major forces: increased demand for products and the growing pressure for conservation of all natural resources including natural gas and natural-gas liquids. These two forces have been desirable in that they encouraged plant construction at a time when there was a backlog of demand. On the other hand, they have produced a rather delicate balance in the light-products market.

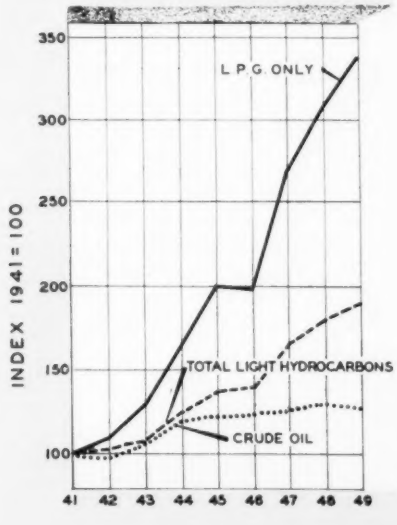
As long as demand was greater than the ability to produce, the added boost from the conservation drive was a welcome force in the program for additional plant capacity. However, if productive capacity is pushed too far beyond actual demand for products, the result is an unstable market.

Such a readjustment came in the natural-gasoline market in 1949. Throughout 1948 the Group 3 price for 26-70 natural remained at 8.5 cents a gallon, or about 2 cents a gallon less than the Group 3 spot price for regular gasoline. By the middle of March natural had dropped to 5 cents a gallon and at the end of the year had risen only to 5.875 cents. The price cuts in the first quarter corresponded to rapid jumps in natural-gasoline and cycle-product stocks from 234,000,000 gal. at the beginning of the year to 311,000,000 gal. at the end of March, or 54 per cent above the stock level for March 1948.

Early postwar forecasts of production were based on probable increases in productive capacity but current estimates are based on projected increases in demand. By the end of this year plant capacity will be up to about 30,000,000 gal. daily.



# Increased Rotary-Rig Efficiency Shown by 1949 Hole Figures

**by Roy F. Carlson**

INCREASED efficiency in operation has marked the use of rotary rigs throughout 1949. More footage has been drilled this year with fewer rigs than in 1948. In 1948, with an average of 2,228 rotary rigs running, 137,392,000 ft. of hole was drilled, about 61,600 ft. per rig. Last year, with an average of 2,083 rigs running during the year, more than 66,000 ft. were drilled per rig.

Although the rig totals for the United States and Canada showed a decline late in 1949, the average for the year is only about 7 per cent less than the average for the record year 1948. The average is much above that for 1947, however.

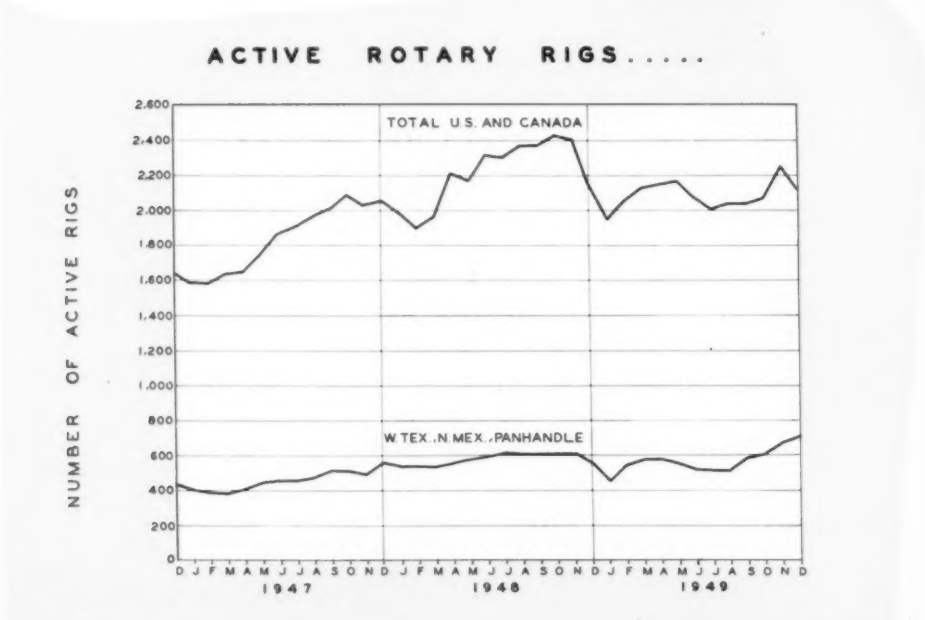
The decline in drilling activity, although unusual, was not large compared to the total number of rigs. From the first-half-year high the total dropped about 130, a decrease of less than 7 per cent. Revision downward of early drilling programs probably is responsible.

Nearly all the increase in the total number of rigs running in the United States and Canada at the year's end is due to an increase in the number of rigs working in the West Texas-New Mexico-Texas Panhandle area. At this time more than one-third of the United States-Canada total was in the area, a record total of 708.

The large influx of rigs into the area has been caused primarily by the reef drilling in Scurry and adjacent counties in Texas. Early in December there were 120 rigs drilling these 7,000-ft. fields, and another 15 rigs were drilling outpost wells or wildcats. Less than 3 weeks ago there were 180 rigs working in the area, and some observers feel that the total in Scurry and adjacent counties may reach 200 in a few months.

The West Texas-New Mexico curve pretty well mirrors the curve for United States and Canada combined. It exhibits steady growth from the war years with only seasonal declines during the winter. It represents the largest number of rigs operating in any area on the North American Continent.

Canadian rig totals have for the past year averaged about 80, and represent about 4 per cent of the total number of rigs operating in North America. Second highest in number of rigs in any one area is the Gulf Coast which at the year's end had 496 rigs running. This is a little below average for the area; 14 months ago there were 624.



# Foreign Production Gains, But World Total Down in 1949

**by Dahl M. Duff**

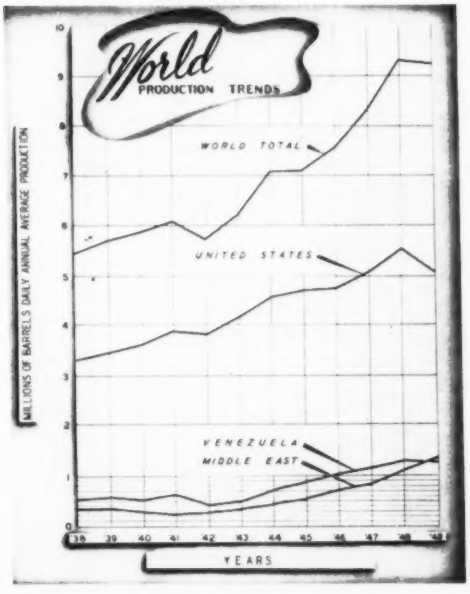
CRUDE-OIL production in foreign fields rose to a new record high level in 1949 but the world total was down because of cutbacks in United States output.

Production in all areas outside the United States last year showed a gain of 11.2 per cent with a daily average of 4,268,600 bbl. compared to 3,840,200 in 1948. This increase, however, was insufficient to offset the decline in the United States, and the world total dropped 40,600 bbl. daily to 9,311,600 bbl. daily.

The outlook for the year ahead is for another sizable gain in foreign production. An increase of 5 per cent, considered a normal demand growth, would bring the world total in 1950 to 9,768,000 bbl. daily.

As far as foreign consumption is concerned, the more optimistic forecasts are tempered by several significant factors. Devaluation of most of the world's currencies in September resulted in higher prices for oil products which are generally tied to unchanged dollar values. The effect of this development is yet to be determined.

European coal production has been moving back to prewar levels, and coal-to-oil conversions have fallen off. Despite its heavy postwar increases in oil consumption, Europe's economy is essentially based on coal as fuel. Also of importance is the fact that the dislocation in world trade forces many countries to continue import and rationing restrictions on petroleum.




There is no question but that foreign production potential is adequate to cover any likely demand requirements next year. Production in the Middle East could be stepped up several hundred thousand barrels daily on short notice. Venezuela's production in the closing months of 1949 was running at an all-time record, but some heavy crude output was still shut back, notably Richmond Exploration Co.'s Boscan field.

The year 1949 witnessed a tapering off in the sharp rates of increase in production, world wide, of the immediate postwar years. Saudi Arabia, world fifth largest producing country, produced about 475,000 bbl. daily in 1949, considerably below what had been earlier forecast. Venezuelan output fell off sharply in the first few months of the year, rising later with improved fuel-oil demand.

In 1949, for the first time, total production in the Middle East surpassed Venezuela's output. The Middle East took a growing share of the European market, and this trend is expected to continue. Kuwait, in only the fourth year of commercial production, showed a daily average of 245,000 bbl., some 93 per cent greater than 1948. However, here as elsewhere, demand and not potential controlled the production rate.

### Canada Shows Large Gain

In the Western Hemisphere, Canada showed an 81 per cent gain in production as a result of development of the Alberta discoveries. This year production is expected to hold around 65,000 to 70,000 bbl. daily until completion of the pipe-line outlet to Eastern markets.

Colombia and Mexico both showed sizable gains in output, and further moderate increases are expected in these countries in 1950. Chile will start commercial shipments early in 1950, and its Tierra del Fuego production will be reflected in the 1950 totals.

In Europe and Africa, Germany and Egypt showed important increases. Egypt's future is still clouded by an uncertain legal outlook for foreign capital. Germany reached new postwar highs, and discoveries in the Emsland and Hanover areas seem likely to upset earlier pessimistic predictions about the country's oil future. Italy's government company found some distillate in the Upper Po Valley last summer. The prospect of passage of workable legislation for foreign companies in this country is now considered remote, and further development probably will be largely in the hands of the government organization.

Another country which may take a place among the commercial producing countries in 1950 is Turkey. Drilling is continuing in Ramandag field,

and plans for a pipe line to the coast are under consideration. Here, also, work is in charge of a government organization.

As far as the Middle East is concerned, 1950 will be a year of continued tanker shipments and waiting for completion of the first major Mediterranean pipe line. This will be the 30-31-in. Tapline which is not expected to go into regular operation until early in 1951. More than 400 miles of this 1,067-mile system has been completed.

There is considerable interest in the likely trend of events in Indonesia under the new republican government. Standard-Vacuum Oil Co. is extending its exploration work in southwestern Sumatra, and the Standard of California-Texaco affiliate is preparing to develop reserves discovered prewar. Shell is developing a new area in Borneo.

Communist secrecy masks the exact status of petroleum operations in Russia and Eastern Europe. The 690,000-bbl. daily with which Russia is currently credited is based on the Soviet-issued percentage claims vs. prewar.

## World Crude-Oil Production

(Annual average in thousands of barrels daily)

| Country— | 1949 | 1948 | 1939 | Per cent increase, 1949 over 1948 | Per cent increase, 1949 over 1939 |
|---|---|---|---|---|---|
| Canada | 59.0 | 32.5 | 21.5 | 81.5 | 174.4 |
| Cuba | 0.4 | 0.3 | 0.3 | 33.3 | 33.3 |
| Mexico | 166.8 | 159.5 | 117.7 | 4.6 | 41.7 |
| United States | 5,043.0 | 5,512.0 | 3,465.6 | —8.5 | 45.5 |
| Total North America | 5,269.2 | 5,704.3 | 3,605.1 | —7.6 | 46.1 |
| Argentina | 63.0 | 64.8 | 51.1 | —2.8 | 23.3 |
| Bolivia | 1.8 | 1.3 | 0.6 | 38.4 | 200.0 |
| Brazil | 0.3 | 0.4 | | —25.0 | |
| Colombia | 82.3 | 64.9 | 65.5 | 26.8 | 25.6 |
| Ecuador | 7.3 | 7.0 | 6.3 | 4.3 | 15.9 |
| Peru | 40.5 | 38.4 | 37.1 | 5.5 | 9.2 |
| Trinidad | 56.5 | 54.9 | 52.8 | 2.9 | 7.0 |
| Venezuela | 1,320.0 | 1,338.8 | 566.0 | —1.4 | 133.2 |
| Total South America | 1,571.7 | 1,570.5 | 779.4 | 0.1 | 101.7 |
| France | 1.1 | 1.1 | 1.4 | | —21.4 |
| French Morocco | 0.4 | 0.2 | | 100.0 | |
| Germany | 16.3 | 12.1 | 12.3 | 34.7 | 32.5 |
| Italy | 0.2 | 0.2 | 0.3 | | —33.3 |
| Netherlands | 11.8 | 9.4 | | 25.5 | |
| Egypt | 42.9 | 36.0 | 12.8 | 19.2 | 235.2 |
| United Kingdom | 0.9 | 0.9 | | | |
| Total Europe and Africa | 73.6 | 59.9 | 26.8 | 22.9 | 174.6 |
| Bahrein | 30.0 | 29.8 | 20.8 | 0.7 | 44.2 |
| Iran | 552.0 | 518.5 | 214.0 | 6.5 | 157.9 |
| Iraq | 84.0 | 72.2 | 84.3 | 16.3 | —0.4 |
| Kuwait | 245.0 | 127.2 | | 92.6 | |
| Saudi Arabia | 475.0 | 390.3 | 10.8 | 21.7 | 4,298.1 |
| Total Middle East | 1,386.0 | 1,138.0 | 329.9 | 21.8 | 320.1 |
| British Borneo | 68.0 | 55.0 | 19.5 | 23.6 | 248.7 |
| Burma | 0.5 | 0.5 | 21.6 | | —97.7 |
| India | 5.3 | 5.3 | *6.4 | | |
| China | 1.8 | 1.8 | | | |
| Indonesia | 112.0 | 86.6 | 170.5 | 29.3 | —34.3 |
| Japan | 3.7 | 3.1 | 7.3 | 19.4 | —49.3 |
| New Guinea | 4.9 | 0.4 | | 1,125.0 | |
| Pakistan | 1.8 | 1.2 | (*) | 50.0 | |
| Total other Asia | 198.0 | 153.9 | 225.3 | 28.7 | —12.1 |
| Total less Russia and Eastern Europe | 8,498.5 | 8,626.6 | 4,966.5 | —1.5 | 71.1 |
| Albania | 2.5 | 1.0 | 2.6 | 150.0 | —3.8 |
| Austria | 18.0 | 17.0 | 3.4 | 5.9 | 429.4 |
| Czechoslovakia | 0.9 | 0.5 | 0.3 | 80.0 | 200.0 |
| Hungary | 10.5 | 10.0 | 3.0 | 5.0 | 250.0 |
| Poland | 2.7 | 2.7 | 10.7 | | —74.8 |
| Romania | 86.0 | 93.4 | 125.0 | —7.9 | —31.2 |
| Russia | 690.0 | 600.0 | 605.0 | 15.0 | 14.0 |
| Yugoslavia | 2.5 | 1.0 | | 150.0 | |
| Total Russia and Eastern Europe | 813.1 | 725.6 | 750.0 | 12.1 | 8.4 |
| Total world | 9,311.6 | 9,352.2 | 5,716.5 | —0.4 | 62.9 |

*Pakistan included in India prior to 1947.

REVIEW AND FORECAST NUMBER

# Natural Gas Turns in Another Record-Breaking Performance

**by Dahl M. Duff**

WHILE operations in the petroleum industry itself were down slightly from 1948, natural gas turned in another record-breaking performance last year and faced 1950 with a prospect of still further spectacular expansion.

Long-distance transmission lines connecting to the gas reserves of Texas, Louisiana, Oklahoma, and Kansas reached into new parts of the country, in many cases supplanting or supplementing high-cost manufactured gas.

In the classification of customers added, sales, and revenues, natural gas made gains ranging from 8 to more than 10 per cent. This continued unchecked the trend in natural gas since the end of the war when the restrictions on construction and materials were relaxed.

Behind this tremendous expansion in natural gas lies an almost unlimited demand for use of the fuel. In many parts of the country it has a marked price advantage over oil and coal, and in addition there is the factor of convenience and stability of supply.

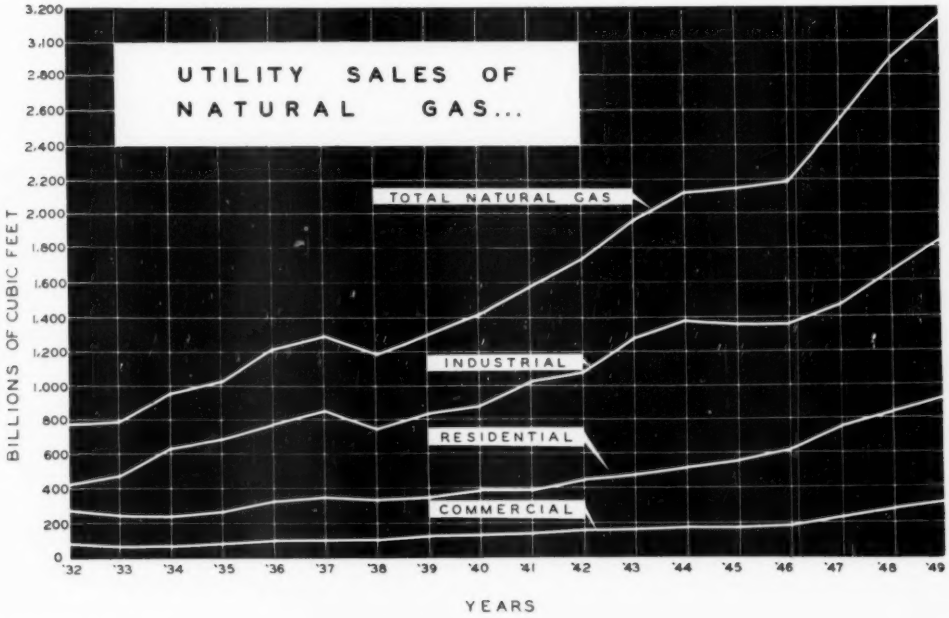
New natural-gas reserve figures when announced in about a month are expected to show sizable gains over the 173,800,000,000,000 cu. ft. reported early last year. An ample long-term supply of gas for existing and proposed pipe lines is indicated by such discoveries as those in Scurry County, Texas, and in the Louisiana-Texas offshore areas.

Natural gas had a banner year in construction of new facilities in 1949. Various projects initiated during the year will be completed in the 1950-52 period, and the increasing supplies of gas made available will be reflected in further sharp gains in customers, revenues, and sales.

During the year just ended, the American Gas Association estimates, based on surveys of the companies themselves, indicate that construction expenditures of the natural-gas industry exceeded $800,000,000. Of this total, approximately 69 per cent was spent in the transmission end of the business.

Next year, construction expenditures will continue high, though with a decline of about 7 per cent from the record total of 1949. The outlay for transmission facilities in 1950 will take some 72 per cent of the total expenditures.

Gas-utility construction expenditures for the 1948-50 period are summarized in the following table. The totals for 1949 and 1950 may be increased later by



the addition of projects announced since the data were compiled.

| | 1948 | 1949 | 1950 |
|---|---|---|---|
| Prod. and storage | $82,435,000 | $63,895,000 | $55,000,000 |
| Transmission | 366,684,000 | 555,295,000 | 542,000,000 |
| Distribution | 153,618,000 | 168,331,000 | 137,000,000 |
| General | 26,481,000 | 21,599,000 | 21,000,000 |
| Total | 629,218,000 | 809,120,000 | 755,000,000 |

Annual capital expenditures of the natural-gas industry increased twelvefold between 1939 and 1948 compared to a fourfold increase for all private domestic investment. During the last 5 years, the natural-gas construction program aggregated an estimated 3 billion dollars.

There are no exact figures on the total production of natural gas. The total marketed by the gas utilities reached a new all-time high of 3,153,335,000,000 cu. ft. This represents about 41 per cent of estimated total production of approximately 7,800,000,000,000, which includes gas disposed of in the field.

Estimates are that total production will reach 9,500,000,000,000 cu. ft. by 1952. Modern conservation practices adopted by the oil industry since the end of the war and the continuing efforts of such regulatory agencies as the Texas Railroad Commission have cut sharply into flaring and other wasteful practices. With this trend, an increasing percentage of total gas production will be taken by the utility pipe-line systems.

### L.P.G. Use Expands

Another phase of the gas-utility industry which is of major importance in petroleum operations is the expanding use of L.P.G. It is estimated that about 334,000 L.P.G. customers were served directly by the gas utilities at the end of 1949. This is an increase of more than four times over the number served in 1945. Prior to that year, these customers were included in the manufactured-gas figures.

At the end of 1948, natural-gas transmission lines in the United States totaled 251,330 miles. This exceeds the total oil-pipe-line mileage by more than 100,000 miles. The network now is estimated at approximately 260,000 miles. The prospective increase in this total is indicated by Federal Power Commission authorizations. In the 6 months ended June 30, FPC gave certificates for the construction of 4,900 additional miles. Another 8,500 miles are now under construction and applications are pending before the commission for about 14,600 miles.

One of the most significant events in the natural-gas industry in the year just ended was the first use of natural gas in the New York area. This was celebrated in a ceremony August 22 when New York's Mayor O'Dwyer lighted a gas jet on Staten Island.

It was made possible by the completion of arrangements for the delivery of 4 million cubic feet daily to New York & Richmond Gas Co. from the supplies brought from Texas and Louisiana through the Texas Eastern Transmission Corp. system. Its importance lay in the fact that it pointed up the movement of natural gas in quantity into the heavily populated Northeast which has heretofore obtained what gas it bought from the manufactured-gas utilities.

Much larger quantities of natural gas will begin moving into the New York metropolitan area early next fall with completion of the Transcontinental Gas Pipe Line Corp. project, an 1,840-mile line from the lower Rio Grande Valley. Texas Eastern, as well as Transcontinental and Tennessee Gas Transmission Co., all are seeking to serve the New England market.

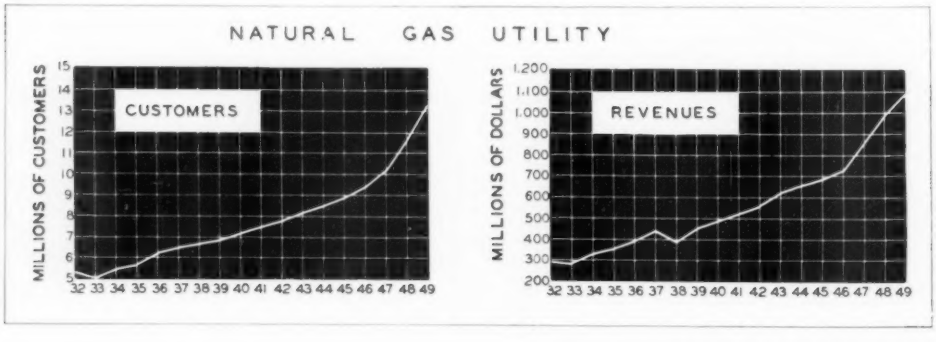
In his recent review of the gas industry in 1949, Hugh H. Cuthrell, association president and head of Brooklyn Union Gas Co., said: "The advent of natural gas will be a boon to some manufactured-gas areas. While it is not expected that consumer rates will be decreased appreciably, most manufactured-gas companies by using natural gas to replace high-cost and sometimes scarce oils for enriching purposes will be able to provide better fuel at no additional cost and will be able to meet increased demands for service without expanding plants in a period of high construction costs."

Of interest in connection with the expansion of natural gas into other parts of the country are the following forecasts of future interstate movement into various areas (figures in million cubic feet daily):

| | 1951-52 | 1955-56 |
|---|---|---|
| New England | | 140 |
| Middle Atlantic | 1,150 | 2,550 |
| South Atlantic | 310 | 590 |
| East Central | 1,600 | 2,600 |
| West Central | 950 | 1,120 |
| Other | 1,450 | 2,030 |

TABLE I—NATURAL GAS

| Customers | 1949 Estimate | Per cent increase over 1948 |
|---|---|---|
| Total | 13,319,000 | 8.0 |
| Residential | 12,198,600 | 8.0 |
| Commercial | 1,060,000 | 8.3 |
| Industrial | 50,500 | 7.7 |
| Other | 9,900 | 4.2 |
| Sales (M c.f.): | | |
| Total | 3,153,335,000 | 8.9 |
| Residential | 905,823,000 | 8.8 |
| Commercial | 306,640,000 | 9.3 |
| Industrial | 1,821,503,000 | 9.2 |
| Other | 119,369,000 | 5.1 |
| Revenues: | | |
| Total | $1,097,328,000 | 10.3 |
| Residential | 581,943,000 | 10.0 |
| Commercial | 146,382,000 | 11.3 |
| Industrial | 347,869,000 | 10.5 |
| Other | 21,134,000 | 9.1 |



# 1950 Looms As Year of Strong Refinery-Expansion Activity

**by R. B. Tuttle**

REFINERY construction completed during 1949 increased the crude-charging capacity of the United States by more than 400,000 bbl. daily. This brought the nation's refining capacity to nearly 7 million barrels daily, and with Canadian plants included this figure could be exceeded.

Reports on refinery-construction projects under way or planned for completion within the next year or two, reported to The Oil and Gas Journal by operating companies, indicate that construction activity will remain strong during 1950. A number of refineries in both the United States and Canada are planning modernization and expansion programs during the latter part of this year or early in 1951. In addition there are several unannounced projects which at the turn of the year appeared to be set for early approval and action.

Activity in Canada is dominion-wide. The number of pending projects is expected to step up Canadian construction appreciably during 1950. As in the case of plant expansion and modernization in the United States, this increased activity will be brought about when plans now unannounced have been authorized.

Completions of refinery projects reached an all-time high in both the United States and Canada during 1949, as listed in the second following table. The table immediately below lists projects under way or in the planning stage.

**ACTIVE REFINERY-BUILDING PROJECTS**

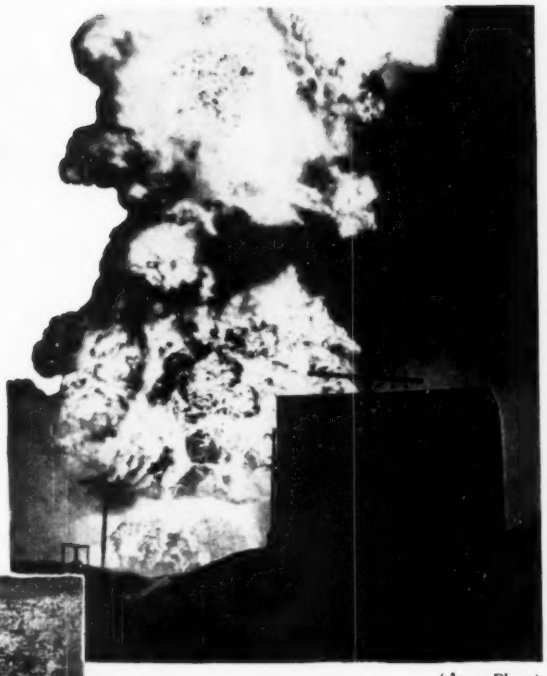
| Company, location and type of project— | Capacity rating | Status | Comp. schedule | Contractors |
|---|---|---|---|---|
| Alba Oil & Refining Co., Alba, Tex.: | | | | |
| New refinery, bbl. per day | 1,000 | Planned | | |
| Ashland Oil & Refining Co., Catlettsburg, Ky.: | | | | |
| Addition to cat. poly plant, bbl. per day | 750 | Building | Mar. '50 | |
| Revamp gas-recovery facilities | | Building | Feb. '50 | |
| Ashland Oil & Refining Co., Canton, Ohio: | | | | |
| Alteration to poly and light ends plants | | Considering | ..... | |
| Berry Asphalt Co., Stephens, Ark.: | | | | |
| Refinery expansion | | Planned | | |
| British American Oil Co., Ltd., Clarkson, Ont., Canada: | | | | |
| Propane deasphalting unit, bbl. per day | 700 | Building | June '50 | M. W. Kellogg Co. |
| Carthage Hydrocol, Inc., Brownsville, Tex.: | | | | |
| Hydrocarbon synthesis plant, cu. ft. per day | 100,000,000 | Building | Late '49 | A. G. McKee & Co. |
| California Refining Co., Barber, N. J.: | | | | |
| Increase refinery capacity including cat. cracker, reformer, alkylation, bbl. per day | 25,000 | Building | | C. F. Braun and M. W. Kellogg Co. |
| Cities Service Oil Co. (Del.), Chicago: | | | | |
| Lube-oil compound plant | 1,200 | Building | July '50 | Sumner S. Sollitt & Co. |
| Cities Service Oil Co. (Pa.), St. Rose, La.: | | | | |
| Compound plant, bbl. per day | 500 | Building | Feb. '50 | Day and Zimmerman |
| Cooperative Refinery Association, Newcastle, Wyo.: | | | | |
| Refinery expansion, bbl. per day | 3,000 | Considered | | |
| Deep Rock Oil Corp., Cushing, Okla.: | | | | |
| Catalytic cracking unit and auxiliaries, bbl. per day | 5,000 | Building | 1950 | Universal Oil Products, Jones & Laughlin, Brown & Lite Co. |
| Boiler-plant enlargement, lb. per hr. | 40,000 | Building | 1950 | Universal Oil Products, Jones & Laughlin, Brown & Lite Co. |
| Water-cooling system, g.p.m. | 17,000 | Building | 1950 | Universal Oil Products, Jones & Laughlin, Brown & Lite Co. |
| Crude unit, bbl. per day | 4,500 | Authorized | May '50 | |
| Derby Oil Co., Wichita, Kans.: | | | | |
| Cat. cracking and plant changes | | Considering | | |
| Empire Petroleum Co., Denver: | | | | |
| Crude distillation unit, bbl. per day | 3,000 | Planned | | |
| Asphalt vacuum tower, bbl. per day | 1,200 | Building | Mid '50 | Koch Engineering Co. |
| Esso Standard Oil Co., Bayonne, N. J.: | | | | |
| Dewaxing unit, bbl. per day | 7,500 | Building | Early '50 | E. B. Badger & Sons Co. |
| Increase steam generating capacity, lb. per hr. | 260,000 | Building | Mid '50 | Day and Zimmerman |
| Esso Standard Oil Co., Everett, Mass.: | | | | |
| Pipe still, naphtha rerun, bbl. per day | 7,000 | Building | Late '50 | |
| Increase steam generating capacity, lb. per hr. | 210,000 | Building | Late '50 | |
| Esso Standard Oil Co., Baton Rouge, La.: | | | | |
| Office and cafeteria buildings | | Building | Mid '50 | John W. Harris Associates, Inc., Bodman & Murrell |
| Excelsior Refineries, Lloydminster, Alta., Canada: | | | | |
| Capacity increase, bbl. per day | 1,500 | Building | | |
| Freeport Sulphur Co., Westville, N. J.: | | | | |
| Sulfur-recovery plant, tons per day | 40 | Building | 1950 | Girdler Corp. |
| Frontier Refining Co., Cheyenne, Wyo.: | | | | |
| Thermal cracking and coking, bbl. per day | 3,500 | Building | June '50 | Refinery Engineering Co. and Universal Oil Products Co. |
| Coking unit, bbl. per day | 2,400 | Building | June '50 | |

**ACTIVE REFINERY-BUILDING PROJECTS (Continued)**

| Company, location and type of project | Capacity rating | Status | Comp. schedule | Contractors |
|---|---|---|---|---|
| Gas & Oil Refineries, Ltd., Hartell, Alta., Canada: | | | | |
| Increase thermal cracking capacity, bbl. per day | 500 | Building | Mar. '50 | Process Construction Co., Inc., and Sparling Davis Co., Ltd. |
| General Petroleum Corp., Torrance, Calif.: | | | | |
| Cat. cracker furnace expansion, bbl. per day | 4,000 | Authorized | 1950 | Lummus Co. |
| Coker unit expansion, bbl. per day | 7,500 | Building | 1950 | E. B. Badger & Sons, M. W. Kellogg Co. |
| Hydrogen sulfide absorber, tons per day | 55 | Building | 1950 | E. B. Badger & Sons, M. W. Kellogg Co. |
| Globe Oil & Refining Co., Lemont, Ill.: | | | | |
| Catalytic cracking unit, bbl. per day | 6,000 | Building | Early '50 | Universal Oil Products Co. |
| Graco Refining Co., Newcastle, Wyo.: | | | | |
| Thermal cracking unit, bbl. per day | 1,200 | Building | Early '50 | Koch Engineering Co. |
| Great Lakes Refining Division, Petco Corp., Blue Island, Ill.: | | | | |
| Catalytic cracking unit, bbl. per day | 5,000 | Building | Mid '50 | Catalytic Construction Co. |
| Hi-Way Refineries, Ltd., Saskatoon, Canada: | | | | |
| Atmospheric distillation unit, bbl. per day | 2,000 | Building | 1950 | Universal Oil Products Co. and Refinery Engineering Co. |
| Thermal cracking unit, bbl. per day | 600 | Building | 1950 | Universal Oil Products Co. and Refinery Engineering Co. |
| Treating and gas recovery facilities | | Building | 1950 | Universal Oil Products Co. and Refinery Engineering Co. |
| Humble Oil & Refining Co., Baytown, Tex.: | | | | |
| Increase crude-oil distillation capacity, bbl. per day | 18,000 | Building | Late '49 | Foster Wheeler Corp. |
| Imperial Oil, Ltd., Sarnia, Ont., Canada: | | | | |
| L.P.G. plant, bbl. per day | 800 | Building | 1950 | |
| Imperial Oil Co., Ltd., Winnipeg, Ont., Canada: | | | | |
| New refinery | | Planned | | |
| Indiana Farm Bureau Co-op Association, Inc., Mount Vernon, Ind.: | | | | |
| Cat. cracking unit, bbl. per day | 5,000 | Building | 1951 | Universal Oil Products Co. |
| Gas-concentration unit, bbl. per day | 3,500 | Building | 1951 | Universal Oil Products Co. |
| Vacuum unit, bbl. per day | 300 | Building | 1951 | Universal Oil Products Co. |
| Revamp polymerization unit | | | | Universal Oil Products Co. |
| Lion Oil Co., El Dorado, Ark.: | | | | |
| Naphtha rerun unit, bbl. per day | 1,200 | Building | Early '50 | |
| Magnolia Petroleum Co., Beaumont, Tex.: | | | | |
| Revamp cat. cracking units | | Building | Late '50 | |
| Mississippi Chemical Co., Yazoo City, Miss.: | | | | |
| Chemical plant | | Planned | | |
| Mohawk Petroleum Corp., Bakersfield, Calif.: | | | | |
| Topping and feed preparation unit, bbl. per day | 7,500 | Authorized | Late '49 | |
| Monarch Refineries, Inc., Oklahoma City: | | | | |
| Vacuum lube unit | | Considering | | |
| National Co-op Refinery Association, McPherson, Kans.: | | | | |
| Polymerization unit | | Considering | | |
| Oklahoma Refining Co., Seminole, Okla.: | | | | |
| New refinery, bbl. per day | 200 | Building | 1950 | |
| Pan-Am Southern Corp., El Dorado, Ark.: | | | | |
| Delayed coker and facilities, bbl. per day | 9,300 | Building | Oct. '50 | The Lummus Co. |
| Panhandle Producing & Refining Co., Wichita Falls, Tex.: | | | | |
| Cat. cracking unit, bbl. per day | 1,500 | Building | Early '50 | Jones & Laughlin Supply Co. and Universal Oil Prod. Co. |
| Phillips Chemical Co., Etter, Tex.: | | | | |
| Increase chemical-plant capacity, tons per year | 100,000 | Authorized | | |
| Phillips Oil Co., Kansas City, Kans.: | | | | |
| Cat. cracking unit, bbl. per day | 24,000 | Building | Jan. '50 | C. F. Braun & Co. |
| Producers Refinery, Inc., West Branch, Mich.: | | | | |
| Refinery expansion, bbl. per day | 1,500 | Planned | | |
| Pure Oil Co., Savannah, Ga.: | | | | |
| Lube-oil processing plant | | Authorized | | |
| Salt Lake Refining Co., Salt Lake City: | | | | |
| Cat. cracking unit, bbl. per day | 10,000 | Authorized | Late '50 | Bechtel Corp. |
| Shallow Water Refining Co., Shallow Water, Kans.: | | | | |
| Reforming unit, bbl. per day | 1,250 | Building | Early '50 | Koch Engineering Co. |
| Shamrock Oil & Gas Corp., Sunray, Tex.: | | | | |
| Cycloversion unit, bbl. per day | 15,000 | Building | Jan. '50 | |
| Polymerization plant, bbl. per day | 500 | Building | Feb. '50 | |
| Shell Oil Co of Canada, Ltd., Montreal, Que., Canada: | | | | |
| Poly. unit | | Building | Early '50 | |
| Cat. cracking unit | | Building | Early '50 | |
| Vacuum unit | | Building | Early '50 | |
| Treating unit | | Building | Early '50 | |
| Sioux Oil Co., Newcastle, Wyo.: | | | | |
| Thermal cracking unit, bbl. per day | 1,000 | Building | Mid '50 | Koch Engineering Co. |
| Catalytic polymerization | | Building | Mid '50 | Koch Engineering Co. |
| Skelly Oil Co., El Dorado, Kans.: | | | | |
| Cat. cracking unit | | Building | Mid '50 | M. W. Kellogg Co. |
| Increase refinery capacity | | Building | Mid '50 | M. W. Kellogg Co. |
| Socony-Vacuum Oil Co., Inc., Trenton, Mich.: | | | | |
| Revamp cat. cracking unit, bbl. per day | 15,000 | Authorized | 1950 | |
| Socony-Vacuum Oil Co., Augusta, Kans.: | | | | |
| Revamp cat. cracking unit, bbl. per day | 15,000 | Authorized | 1950 | Bechtel Corp. |
| Socony-Vacuum Oil Co., Inc., Paulsboro, N. J.: | | | | |
| Dewaxing unit, bbl. per day | 2,500 | Building | Jan. '50 | E. B. Badger & Sons Co. |
| Light-oil treating, bbl. per day | 28,000 | Building | 1950 | |
| Propane deasphalting, bbl. per day | 5,950 | Building | 1950 | |

# Reduce Hazard from Exposure Fires

## with a Horton DOUBLE-DECK Floating Roof



(Acme Photo)

*Above: 2,500,000 gallons of crude oil go up in smoke because of a fire started when a bunsen burner ignited naphtha fumes in a laboratory nearby. The cooling tower in the foreground collapsed just after this picture was taken.*

*Left: Aerial view of a 35,000 bbl. tank equipped with a Horton Double-Deck Floating Roof at a pipe line station in Oklahoma. It shows very clearly how this roof floats directly on the surface of the liquid in the tank.*

The Horton Double-Deck Floating Roof protects the contents of a tank from exposure fires. A recent survey by the American Petroleum Institute shows that most oil fires start outside oil property. The danger that such fires will ignite tanks equipped with Horton Floating Roofs is greatly reduced for two reasons.

This roof floats directly on the surface of the liquid in the tank and does away with the large vapor space found in cone roof tanks. It blankets the surface of the liquid, eliminating the air necessary to support combustion.

The type of seal that is used to close the space between the deck and the tank shell further reduces the fire hazard. The efficiency of this Horton Seal in preventing the escape of vapor assures that an inflammable mixture will not persist above the roof. That is why the Underwriters' Laboratories report says "The floating roof will not permit the contents of the tank to support a continuous fire . . ."

The Horton Double-Deck Floating Roof can be furnished with new tanks or installed on existing tanks whose shells are in good condition. It is particularly recommended for use on tanks filled and emptied frequently, tanks in blending service, tanks storing corrosive products, and tanks located in congested areas.

*For complete details about the Horton Double-Deck Floating Roof, write the nearest office for Bulletin B.*

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Detroit, 26 ..... 1514 Lafayette Bldg.
Havana ..... 402 Abreu Bldg.
Houston, 2 ..... 2119 National Standard Bldg.
Los Angeles, 14 ..... 1523 General Petroleum Bldg.
New York, 6 ..... 3347—165 Broadway Bldg.
Philadelphia, 3 ..... 1615—1700 Walnut Street Bldg.
Salt Lake City, 1 ..... 525 West 17th South St.
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## ACTIVE REFINERY-BUILDING PROJECTS (Continued)

| Company, location and type of project— | Capacity rating | Status | Comp. schedule | Contractors |
|---|---|---|---|---|
| Dewaxing unit, bbl. per day | 2,050 | Building | 1950 | |
| Modernize compounding and packaging, bbl. per day | 5,000 | Building | 1950 | |
| Socony-Vacuum Oil Co., Inc., East St. Louis, Ill.: | | | | |
| Thermal cracking, bbl. per day | 13,200 | Building | 1950 | |
| Delayed coking unit, bbl. per day | 8,000 | Building | 1950 | |
| Misc. refinery additions | | Building | 1950 | |
| Socony-Vacuum Oil Co., Inc., Casper, Wyo.: | | | | |
| Topping unit revisions, bbl. per day | 5,900 | Building | 1950 | |
| Stancal Asphalt & Bitumuls Co., Point Wells, Wash.: | | | | |
| Asphalt plant | | Authorized | | |
| Standard Oil Co. of California, Coalinga, Calif.: | | | | |
| Distillation equipment | | Building | Mar. '50 | |
| Stanolind Oil & Gas Co., Brownsville, Tex.: | | | | |
| Chemicals recovery and refining | | Building | Jan. '50 | E. B. Badger & Sons Co. |
| Sun Oil Co., Toledo: | | | | |
| Cat. cracking unit, bbl. per day | 30,000 | Building | Feb. '50 | Catalytic Const. Co., Fluor Corp., Process Engineers, Inc., Sun Oil Co. |
| Crude unit, bbl. per day | 30,000 | Building | Feb. '50 | Catalytic Const. Co., Fluor Corp., Process Engineers, Inc., Sun Oil Co. |
| Sun Oil Co., Marcus Hook, Pa.: | | | | |
| Crude topping and catalytic units, bbl. per day | 30,000 | Building | Apr. '50 | W. W. Lindsay Co. and Sun Oil Co. |
| The Texas Co., Lawrenceville, Ill.: | | | | |
| Increase refinery capacity, bbl. per day | 20,000 | Authorized | Early '51 | Foster Wheeler Corp. and M. W Kellogg Co. |
| Tide Water Associated Oil Co., Drumright, Okla.: | | | | |
| Catalytic cracking unit, bbl. per day | 4,500 | Building | Jan. '50 | Process Engrs., Inc. |
| Trinidad Leaseholds (Canada), Ltd., Port Credit, Canada: | | | | |
| Treating plant | | Planned | | |
| Uinta Oil Refining Co., Jensen, Utah: | | | | |
| Debutanizer, bbl. per day | 850 | Building | Apr. '50 | |
| Union Oil Co. of California, Oleum, Calif.: | | | | |
| Revisions to crude facilities | | Building | Feb. '50 | R. M. Parsons Co., Ehrhart & Arthur, Inc., and Refinery Maintenance Co. |
| Improvements to compound and barrel handling facilities | | Building | Feb. '50 | J. M. Montgomery & Co., Fred J Early Co. and C. Norman Peterson |
| Additions to main office and other buildings | | Building | Jan. '50 | Austin Field & Fry, Don R. Warren Co., J. M. Montgomery & Co., E. S. McKittrick and Parker, Steffens & Pearce |
| Fuel-oil tankage and transfer facilities | | Building | Mar. '50 | R. M. Parsons Co., Eaton & Smith, Utah Const. Co. and Chicago Bridge & Iron Co. |
| Vickers Petroleum Co., Inc., Potwin, Kans.: | | | | |
| Revamp cat. poly. plant, bbl. per day | 250 | Building | Feb. '50 | |
| Reforming unit, bbl. per day | 1,000 | Building | Feb. '50 | |
| Desalting unit, bbl. per day | 6,000 | Building | Apr. '50 | |

## REFINERY PROJECTS COMPLETED IN 1949

| Company, location, and type of project— | Capacity rating |
|---|---|
| Ashand Oil & Refining Co., Catlettsburg, Ky.: | |
| Modernizing catalytic cracking unit, bbl. per day | 12,000 |
| Ashland Oil & Refining Co., Canton, Ohio: | |
| Revamp crude units | |
| Atlantic Refining Co., Philadelphia: | |
| Modify combination cracking unit | |
| Atlantic Refining Co., Port Arthur: | |
| Modify combination cracking unit | |
| Aurora Gasoline Co., Detroit: | |
| Revise cat. cracker, bbl. per day | 7,000 |
| Revamp thermal reformer, bbl. per day | 3,000 |
| Aurora Gasoline Co., Elsie, Mich.: | |
| Revamp crude unit, bbl. per day | 5,000 |
| Bareco Oil Co., Wichita, Kans.: | |
| L.P.G. plant, bbl. per day | 200 |
| British American Oil Co., Ltd., Montreal, Que., Can.: | |
| Crude distillation unit, bbl. per day | 14,500 |
| Cat. cracking, decarbonizing, and polymerization units | |
| Carter Oil Co., Billings, Mont.: | |
| New refinery including cat. cracker, bbl. per day | 20,000 |
| Champlin Refining Co., Enid, Okla.: | |
| Crude pipe still, bbl. per day | 20,000 |
| Poly plant, bbl. per day | 400 |
| Cit-Con Oil Corp., Lake Charles, La.: | |
| New lube-oil refinery, bbl. per day | 6,000 |
| Cities Service Oil Co. (Del.), East Chicago, Ind.: | |
| Delayed-coking unit, bbl. per day | 17,500 |
| Cat. cracking unit, bbl. per day | 14,700 |
| Cities Service Oil Co. (Pa.), St. Rose, La.: | |
| Compounding plant, bbl. per day | 4,000 |
| Continental Oil Co., Ponca City, Okla.: | |
| Treating unit, bbl. per day | 20,000 |
| Crude unit | |
| Continental Oil Co., Denver, Colo.: | |
| Catalytic cracking unit, bbl. per day | 6,600 |
| Continental Oil Co., Billings, Mont.: | |
| New refinery including: Cat. cracking; cat. polymerization; cat. desulfurization, bbl. per day | 6,800 |
| Cooperative Refinery Association, Coffeyville, Kans.: | |
| Solvent dewaxing unit, bbl. per day | 2,200 |
| Copolymer Corp., Baton Rouge, La.: | |
| Cold rubber plant, lb. per year | 60,000,000 |
| Cosden Petroleum Corp., Big Spring, Tex.: | |
| Fluid cat. cracker, bbl. per day | 8,800 |
| Vacuum unit, bbl. per day | 9,000 |
| Daugherty Refinery (L. Sonneborn Sons, Inc.), Petrolia, Pa.: | |
| Sludge acid recovery plant, tons per day | 50 |
| Deep Rock Oil Corp., Cushing, Okla.: | |
| Tankage, bbl. | 200,000 |
| Empire State Oil Co., Thermopolis, Wyo.: | |
| Crude-oil distillation unit, bbl. per day | 5,000 |
| Esso Standard Oil Co., Baton Rouge: | |
| Debutanizing and splitting unit, cu. ft. per day | 6,200,000 |
| Bbl. per day | 11,000 |
| Esso Standard Oil Co., Linden, N. J.: | |
| Catalytic cracking unit, bbl. per day | 41,000 |
| Vacuum pipe still, bbl. per day | 49,000 |
| Esso Standard Oil Co., Bayonne, N. J.: | |
| Dewaxing unit, bbl. per day | 7,500 |
| Evangeline Refining Co., Jennings, La.: | |
| Reforming unit, bbl. per day | 400 |
| Excelsior Refineries, Lloydminster, Alta., Can.: | |
| Move refinery from McMurray, bbl. per day | 3,000 |

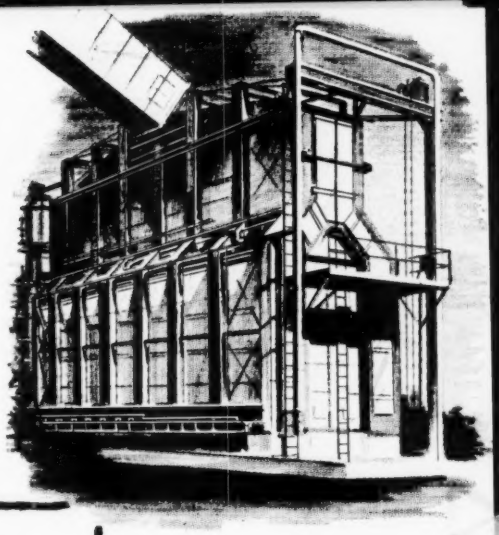
# UNIVERSAL REFINING FACTS

## A TEN DAY RUN!

TEN DAYS CONTINUOUS RUN OF REFINING EQUIPMENT WAS REALLY A RECORD BACK IN 1919 WHEN THE FIRST UNIVERSAL DUBBS UNIT PROVED THE ADVANTAGES OF THERMAL CRACKING IN A DEMONSTRATION AT INDEPENDENCE, KANSAS. SINCE THOSE EARLY YEARS, UNIVERSAL HAS PLAYED AN IMPORTANT PART IN THE DEVELOPMENT AND IMPROVEMENT OF PETROLEUM REFINING PROCESSES . . . WORK THAT HAS DONE MUCH TO HELP THE INDUSTRY BREAK RECORD AFTER RECORD IN THE CONTINUOUS OPERATION OF PROCESSING UNITS.

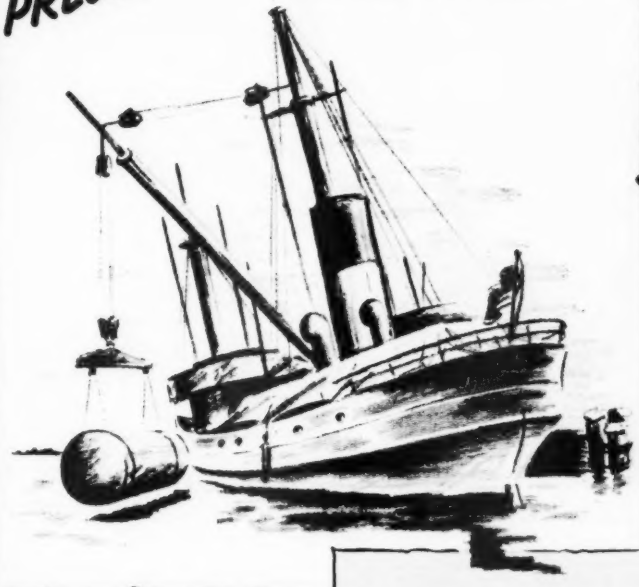
# FIRST FOR THE SMALLER REFINER!

SMALLER OPERATORS NEEDED HEATERS...EXPENSIVE PROPOSITIONS A FEW YEARS BACK. THAT'S WHY UNIVERSAL ENGINEERED THE UPDRAFT HEATER AND MADE AN ECONOMICAL, SIMPLIFIED DESIGN AVAILABLE. THE FIRST UPDRAFT HEATER, INSTALLED IN 1936, MARKED AN IMPORTANT CONTRIBUTION TO THE INDUSTRY'S PROGRESS.



## UNDER PRESSURE!

VESSELS FOR FOREIGN SERVICE ARE OFTEN FLOATED FROM THE SHIP TO THE BEACH AND UOP HAS ALWAYS SPECIFIED THAT THESE VESSELS BE SHIPPED UNDER 25 POUNDS PRESSURE. A SIMPLE DETAIL, BUT AN EASY WAY OF PROVING WHETHER OR NOT THE VESSEL WILL FLOAT WHEN IT'S DROPPED TO THE WATER. IF THE PRESSURE'S THERE, OK. IF NOT, THEN LOOK FOR LEAKS!



## OIL IS PROGRESS!

TWENTY-ONE BILLION MORE BARRELS OF OIL WOULD HAVE BEEN REQUIRED TO EQUAL THE INDUSTRY'S RECORD OF GASOLINE PRODUCTION IF MODERN CRACKING METHODS HAD NOT BEEN AVAILABLE.

## UNIVERSAL OIL PRODUCTS COMPANY

UOP General Offices: 310 S. MICHIGAN AVE., CHICAGO 4, ILLINOIS, U. S. A.

LABORATORIES: RIVERSIDE, ILLINOIS

*Universal Service Protects Your Refinery*

**REFINERY PROJECTS COMPLETED IN 1949 (Continued)**

| Company, location, and type of project— | Capacity rating |
|---|---|
| Freedom-Valvoline Oil Co., Freedom, Pa.: | |
| Filter plant | |
| General Petroleum Corp., Torrance, Calif.: | |
| Expand cat. cracker | |
| Revamp crude unit, bbl. per day | 32,000 |
| Great Lakes Refining Co., Div. of Petco. Corp., Blue Island, Ill.: | |
| Increase skimming plant, bbl. per day | 3,000 |
| Gulf Oil Corp., Philadelphia: | |
| Topping and vacuum unit, bbl. per day | 30,000 |
| Gulf Refining Co., Toledo: | |
| Cat. cracking unit, bbl. per day | 15,500 |
| Atmospheric-Vacuum unit, bbl. per day | 32,000 |
| Polymerization unit, bbl. per day | 5,000 |
| Treating unit | |
| Convert combination unit to thermal cracker | |
| Gulf Refining Co., Cincinnati: | |
| Increase refinery capacity, bbl. per day | 28,000 |
| Cat. cracking unit, bbl. per day | 15,500 |
| Poly unit, bbl. per day | 5,000 |
| Treating unit | |
| Hancock Chemical Co., Los Angeles: | |
| Sulfur-recovery plant, tons per day | 50 |
| Hi-Way Refineries, Ltd., Saskatoon, Sask., Can.: | |
| Atmospheric distillation unit, bbl. per day | 2,000 |
| Thermal cracking unit, bbl. per day | 600 |
| Regenerative gasoline treating | |
| Imperial Oil, Ltd., Edmonton, Alta., Can.: | |
| Thermal cracking unit | |
| Increase plant capacity, bbl. per day | 21,500 |
| Imperial Oil, Ltd., Regina, Sask., Can.: | |
| Modernization of pipe still, bbl. per day | 15,000 |
| Imperial Oil, Ltd., Sarnia, Ont., Can.: | |
| Increases capacity dewaxing plant, lb. per year | 12,000,000 |
| Kanotex Refining Co., Arkansas City, Kans.: | |
| Catalytic desulfurization-reforming unit, bbl. per day | 4,200 |
| Revamp vapor-recovery unit, bbl. per day | 1,000 |
| Lion Oil Co., El Dorado, Ark.: | |
| Vacuum pipe still, bbl. per day | 7,000 |
| Naphtha-rerun unit | 1,200 |
| Asphalt specialties plant | |
| Magnolia Petroleum Co., Beaumont, Tex.: | |
| Dewaxing unit, bbl. per day | 4,800 |
| Solvent-extraction unit, bbl. per day | 4,000 |
| Mercury Oil Refining Co., Oklahoma City: | |
| Crude-oil topping unit, bbl. per day | 3,500 |
| McColl-Frontenac Oil Co., Ltd., Montreal: | |
| Catalytic cracking and cat. poly units | |
| M.F.A. Oil Co., Chanute, Kansas: | |
| Catalytic desulfurization unit, bbl. per day | 1,000 |
| Midland Co-op. Wholesale, Cushing, Okla.: | |
| Thermal reforming unit, bbl. per day | 1,000 |
| Catalytic polymer unit, bbl. per day | 200 |
| North Star Oil, Ltd., St. Boniface, Man., Can.: | |
| Added pipe still, bbl. per day | 3,000 |
| Reforming unit, bbl. per day | 8,000 |
| Resid. flash unit | |
| Ohio Oil Co., Robinson, Ill.: | |
| Crude unit, bbl. per day | 27,500 |
| Cat. cracker, bbl. per day | 12,400 |
| Gas-recovery system | |
| Catalytic polymerization unit, bbl. per day | 3,800 |
| Gasoline-treating plant | |
| Power-plant extension | |
| Old Dutch Refining Co., Muskegon, Mich.: | |
| Revamp cracking plant | |
| Cracking, bbl. per day | 1,100 |
| Reforming, bbl. per day | 900 |
| Osceola Refining Co., Inc., Reed City, Mich.: | |
| Desalting process, bbl. per day | 2,000 |
| Paluxy Asphalt Co., Yazoo City, Miss.: | |
| Cat. poly. unit, bbl. per day | 200 |
| Pan American Refining Corp., and Mexican Petroleum Corp., Baltimore: | |
| Replace fractionators | |
| Pan American Refining Corp. and Mexican Petroleum Corp., Texas City, Tex.: | |
| Increase desalter capacity | |
| Special petroleum chemicals unit | |
| Increase crude-handling facilities | |
| Paraffine Companies, Inc., Emeryville, Calif.: | |
| Asphalt stills, bbl. | 720 |
| Pennzoil Co., Rouseville, Pa.: | |
| Additional boilers, lb. per hour | 45,000 |
| Petroleum Specialties, Inc., Flat Rock, Mich.: | |
| Crude-oil fractionator, bbl. per day | 6,000 |
| Pennsylvania Refining Co., Karns City, Pa.: | |
| Rerun unit, bbl. per day | 100 |
| Phillips Oil Co., Kansas City, Kans.: | |
| Compounding plant | |

| Company, location, and type of project— | Capacity rating |
|---|---|
| Pure Oil Co., Nederland, Tex.: | |
| Wax recrystallization, lb. per day | 26,000 |
| Rado Refining Co., McAllen, Tex.: | |
| Crude-oil skimming, bbl. per day | 3,000 |
| Republic Oil Refining Co., Texas City, Tex.: | |
| Polymerization unit, bbl. per day | 850 |
| Rock Island Refining Corp., Rock Island, Ind.: | |
| Cat. cracking plant, bbl. per day | 5,000 |
| Salt Lake Refining Co., Salt Lake City: | |
| New refinery, bbl. per day | 25,000 |
| Shamrock Oil & Gas Corp., Sunray, Tex.: | |
| Increase refinery capacity, bbl. per day | 5,000 |
| Shell Oil Co., Houston, Tex.: | |
| Propane deasphalting unit, bbl. per day | 4,500 |
| Phenol-extraction unit, bbl. per day | 5,800 |
| Shell Oil Co., Sewaren, N. J.: | |
| Terminal and compounding plant | |
| Shell Oil Co., Wilmington and Martinez, Calif.: | |
| Gasoline treater | |
| Extend insecticide plant | |
| Lube-handling facilities | |
| Shell Oil Co., Inc., Norco, La.: | |
| Fractionator, bbl. per day | 12,000 |
| Sinclair Refining Co., Marcus Hook, Pa.: | |
| Salt settling unit, bbl. per day | 70,000 |
| Sinclair Refining Co., East Chicago, Ind.: | |
| Lube-treating plant, bbl. per day | 2,500 |
| Dewaxing unit | |
| Waste-water purification plant | |
| Socony-Vacuum (Lubrite Div.), E. St. Louis, Ill.: | |
| Crude distillation unit, bbl. per day | 15,000 |
| Treating unit, bbl. per day | 20,000 |
| Reforming and vis-breaking unit, bbl. per day | 15,000 |
| Delayed-coking unit, bbl. per day | 8,700 |
| Socony-Vacuum Oil Co., Inc., Paulsboro, N. J.: | |
| Crude-distillation unit, bbl. per day | 19,500 |
| Vacuum distillation unit, furfural refining unit, propane-deasphalting unit and solvent-dewaxing units | |
| Socony-Vacuum Oil Co., Inc., Casper, Wyo.: | |
| Revision to topping units, bbl. per day | 6,900 |
| Sohio Oil Co., Cleveland: | |
| Alter cat. cracking unit | |
| Southwestern Oil & Refining Co., Corpus Christi, Tex.: | |
| Catalytic reforming unit, bbl. per day | 5,000 |
| Topping unit, bbl. per day | 25,000 |
| Standard Oil Co. of British Columbia, Vancouver, B. C., Can.: | |
| Additional gasoline storage, bbl. | 66,000 |
| Standard Oil Co. of California, El Segundo, Calif.: | |
| Modernize filling plant | |
| Standard Oil Co. of California, Richmond, Calif.: | |
| Wax plant, lb. per year | 45,000,000 |
| Standard Oil of Calif., Bakersfield, Calif.: | |
| Crude unit, bbl. per day | 20,000 |
| Standard Oil Co. (Ind.), Whiting: | |
| Motor-oil facilities | |
| Standard Oil Co. (Ind.), Casper, Wyo.: | |
| New catalytic cracking unit | |
| Standard Oil (Ohio), Lima, Ohio: | |
| Cat. cracking unit, bbl. per day | 16,000 |
| Stanton Chemicals, Inc., Corpus Christi, Tex.: | |
| Petrochemical plant, tons per day | 50 |
| Sun Oil Co., Marcus Hook, Pa.: | |
| Wax refining plant | |
| Packaging plant | |
| Sunset Oil Co., Los Angeles, Calif.: | |
| Topping unit, bbl. per day | 4,000 |
| Texas Co., Port Arthur, Tex.: | |
| Treating facilities | |
| The Texas Co., West Tulsa, Okla.: | |
| Increase plant capacity, bbl. per day | 30,000 |
| Catalytic cracking unit, bbl. per day | 5,000 |
| Texas Co., Westville, N. J.: | |
| New refinery, bbl. per day | 40,000 |
| Tide Water Associated Oil Co., Bayonne, N. J.: | |
| Propane deasphalting, bbl. per day | 3,400 |
| Union Oil Co. of California, Wilmington, Calif.: | |
| Hydrogen sulfide recovery, bbl. per day | 30,000 |
| Union Oil Co., Oleum, Calif.: | |
| Solvent-extraction unit, bbl. per day | 6,000 |
| Utah Oil & Refining Co., Salt Lake City: | |
| Propane-deasphalting unit, bbl. per day | 10,000 |
| Extend steam-generating plant, lb. per hour | 65,000 |
| Western States Refining Co., North Salt Lake City, Utah: | |
| New refinery, bbl. per day | 1,500 |
| Wilcox Oil Co., Bristow, Okla.: | |
| Install boiler; hp. | 250 |

(Aerial view of Carteret, N.J.)

# *Develop new markets . . .*

## at less cost . . . with no investment in equipment

## *by using General American Tank Storage Terminals*

Make no investment. Risk no capital.

Four strategically located terminals can handle any liquid that flows through a pipeline. They provide tanks, pipelines, docks, loading racks, drumming and canning facilities, labor, supervision and administration.

You may enjoy all the privacy and convenience of your own private terminal. General American warehouse receipts represent the highest form of collateral. For financing, storage and distribution suggestions, contact your nearest General American representative.

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TERMINALS AT: Carteret, N.J.; Houston, Texas; Corpus Christi, Texas; Goodhope, La. • **Offices in Principal Cities**

# Industry Adding Billion Feet Daily to Processing Capacity

**by R. B. Tuttle**

CAPACITY to process more than a billion cubic feet of natural gas daily will be constructed in 1950, according to a survey of company plans by The Oil and Gas Journal. A substantial portion of the new projects listed in the following table involves entirely new plants. Most of the projects are already under construction, and only about 17 per cent of the total capacity is still in the "planned" category.

Total liquid production capacity of all operating natural-gas processing plants in the United States is estimated at 30,000,000 gal. daily at the end of 1949. With the completion of the projects under way this year, capacity is expected to approach closely 32 million gallons daily.

Natural-gas processing-plant projects completed during 1949 follow the list below.

**NATURAL GAS PROCESSING PLANT BUILDING PROJECTS**

| | | | | |
|---|---|---|---|---|
| Anzac Oil Corp., Coleman County, Texas: | | | | |
| Gas-injection unit, cu. ft. per day | 500,000 | Considering | 1950 | |
| Arkansas Fuel Oil Co., Ruston, La.: | | | | |
| Gasoline plant, cu. ft. per day | 50,000,000 | | | |
| Barnsdall Oil Co., Scurry County, Texas: | | | | |
| Natural-gasoline plant, cu. ft. per day | 26,000,000 | Considered | | |
| Bolin Trust, Wichita County, Texas: | | | | |
| Gas-injection unit | | Authorized | | |
| California Co., Barataria, La.: | | | | |
| Natural-gasoline plant, cu. ft. per day | 25,000,000 | Considering | | |
| Cities Service Oil Co., Chico, Tex.: | | | | |
| Gasoline-absorption plant, cu. ft. per day | 10,000,000 | Building | Jan. '50 | |
| Coastal Refineries, Inc., and Mayfair Minerals, Inc., McAllen, Tex.: | | | | |
| Cycling plant, cu. ft. per day | 75,000,000 | Building | | Gasoline Plant Const. Co. |
| Coline Gasoline Corp., Rincon, Tex.: | | | | |
| Natural-gasoline plant, fat oil, gal. per day | 45,000 | Building | Mar. '50 | Refinery Maintenance Co. |
| Coline Gasoline Corp., Ventura County, California: | | | | |
| Deethanization, propane, L.P.G. and natural-gasoline facilities | | Building | Mar. '50 | Refinery Maintenance Co. |
| Columbian Fuel Corp., Hickok, Kans.: | | | | |
| Desulfurization unit, cu. ft. per day | 2,200,000 | Building | 1950 | Graff Engineering & Equipment Co. |
| Consolidated Gas Utilities Corp., Cement, Okla.: | | | | |
| Compressor station, cu. ft. per day | 40,000,000 | Building | Jan. '50 | Dresser Engineering Co. |
| Continental Oil Co., Starr County, Texas: | | | | |
| Gasoline-plant revisions, cu. ft. per day | 7,500,000 | Building | Mar. '50 | Jones & Laughlin Supply Co. |
| Continental Oil Co., DeWitt and Goliad counties, Texas: | | | | |
| Compressor plant, cu. ft. per day | 10,000,000 | Building | Feb. '50 | Process Engineers, Inc. |
| Continental Oil Co., Ventura County, California: | | | | |
| Compressor-plant changes and expansion | | | | |
| Gasoline-plant revisions, cu. ft. per day | 23,000,000 | Building | Feb. '50 | Ehrhart & Arthur, Inc., Refinery Maintenance, Inc. |
| Delhi Oil Corp., Barker Dome, N. M.: | | | | |
| Natural-gas desulfurization unit | | Considering | | Graff Engineering & Equipment Co. |
| Del Rey Petroleum Co., Chesterville, Tex.: | | | | |
| Natural-gasoline plant, cu. ft. per day | 25,000,000 | Building | Jan. '50 | O. L. Olsen |
| El Paso Natural Gas Co., Upton County, Texas: | | | | |
| Natural-gasoline plant, cu. ft. per day | 15,000,000 | Authorized | Apr. '50 | |
| El Paso Natural Gas Co., McCamey, Tex.: | | | | |
| Compressor and purification unit, cu. ft. per day | 15,000,000 | Authorized | Apr. '50 | |
| Gulf Oil Corp., Crane County, Texas: | | | | |
| Natural-gasoline plant, cu. ft. per day | 40,000,000 | Building | | C. F. Braun & Co. |
| Hanna Petroleums, Ltd., Hanna, Alta., Canada: | | | | |
| Natural-gasoline plant, cu. ft. per day | 1,000,000 | Planned | 1950 | |
| Humble Oil & Refining Co., Jourdanton field, Texas: | | | | |
| Natural-gasoline plant, cu. ft. per day | 30,000,000 | Building | Mar. '50 | Hudson Engineering Corp. |
| Imperial Oil, Ltd., Leduc, Alta., Canada: | | | | |
| Gas conservation, cu. ft. per day | 24,000,000 | Building | 1950 | |
| Kirk Pool Operators Committee, Eastland County, Texas: | | | | |
| Natural-gasoline plant | | Planned | | |
| Lone Star Gas Co., Fisher County, Texas: | | | | |
| Dehydration and desulfurization unit | | Building | Jan. '50 | Graff and Lone Star |
| Lone Star Gas Co., Eastland County, Texas: | | | | |
| Increase plant capacity, gal. per day | 15,000 | Considering | | |
| Lone Star Gas Co., Royston, Tex.: | | | | |
| Desulfurization-dehydration unit, cu. ft. per day | 10,000,000 | Building | | O. L. Olsen |
| Lone Star Gas Co., Palo Pinto County, Texas: | | | | |
| Hypersorption plant | | Authorized | | Foster Wheeler |
| Magnolia Petroleum Co., Karnes City, Tex.: | | | | |
| Natural-gas condensate-processing plant, cu. ft. per day | 10,000,000 | Building | 1950 | Delta Engineering Co. |

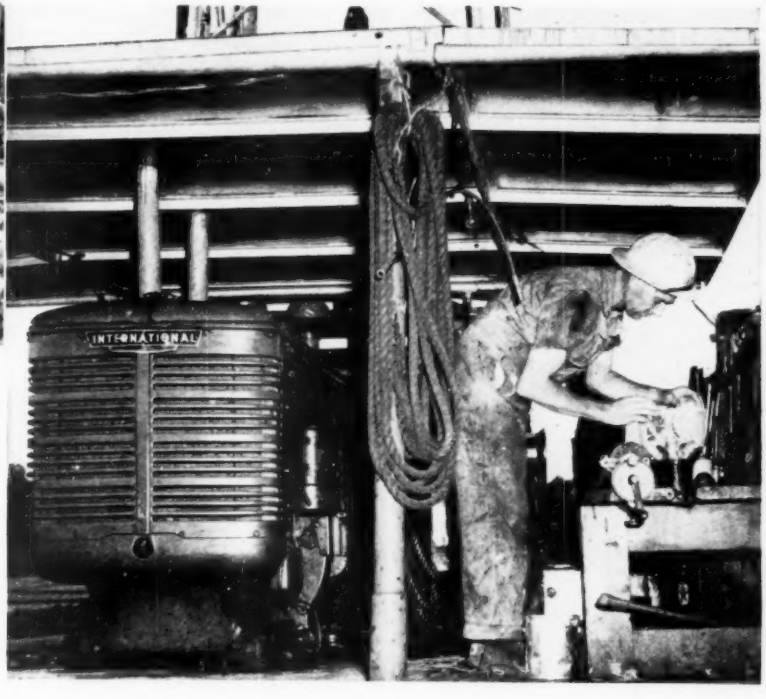
# RIGHT FOR THE RIG

More than 15,000 hours of low-cost, low-maintenance operation of this International UD-18 Power Unit on a light duty rotary rig prove that International Power is right for the rig. This power unit drives both rotary drill and draw works, designed to drill approximately 2500 feet.

There's International Power available for bigger rigs, too. The International UD-24 Diesel Power Unit delivers 180 net horsepower. Singly or combined, these engines will handle almost every drilling job with rigid economy and dependable efficiency.

See your International Industrial Power Distributor, Dealer or supply house for the power that pays operating dividends. You'll find Internationals are right for just about every power job in the oil fields from "making hole" to powering pumpjacks.

INTERNATIONAL HARVESTER COMPANY, Chicago



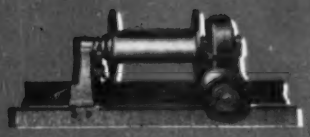

Standardize on Power that Pays

CRAWLER TRACTORS
WHEEL TRACTORS
DIESEL ENGINES
POWER UNITS

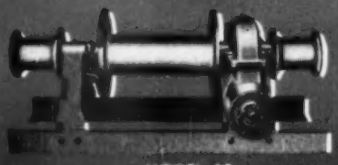
INTERNATIONAL HARVESTER

INTERNATIONAL INDUSTRIAL POWER

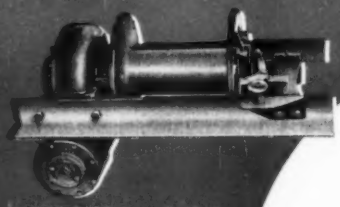
# Each Year SERVE IN



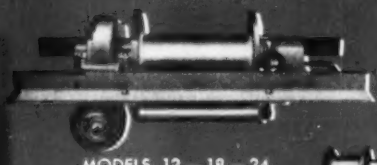
MODEL 10
¼ and 1-ton Trucks
8000 lbs. Capacity



MODEL 19
1½ and 2-ton Trucks
15,000 lbs. Capacity



MODELS 12-G and 18-G
For Front mounting on Trucks
6000 and 15,000 lbs. Capacities



MODELS 12 — 18 — 24
Underslung for ¾ to 3-ton Trucks
8000, 15,000, 30,000 lbs. Capacities

MODELS 21 and 23
1½ and 2-ton Trucks
15,000 and 18,000 lbs. Capacities

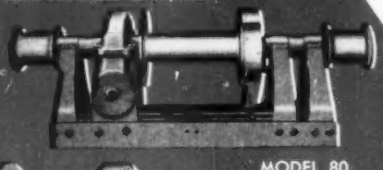
MODEL 34
2 and 3-ton Trucks
30,000 lbs. Capacity

MODEL 36
2 and 3-ton Trucks
30,000 lbs. Capacity

MODEL 64
3 and 4-ton Trucks
40,000 lbs. Capacity

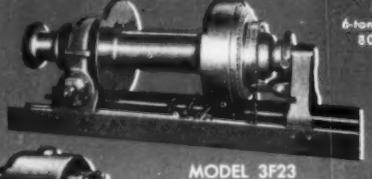
MODELS 65 and 70
3 and 4-ton — 4-ton and larger Trucks
40,000 and 60,000 lbs. Capacities

DOUBLE DRUM WINCHES
8000 to 40,000 lbs. Capacities



MODEL 80
6-ton Trucks and larger
8000 lbs. Capacity

POWER DIVIDER
Independent Powering of 2 units
from 1 power source
or
Capacity — Refers to
Safe Working Ratings

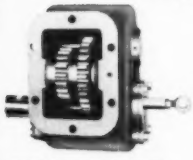


MODEL 3F23
Friction Clutch
18,000 lbs. Capacity

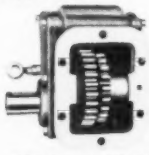
TWO SPEED
HANGER BEARING
2 output speeds for
1 input speed

PUBLIC UTILITY
Extended drum shaft
6000 to 25,000 lbs. Capacities

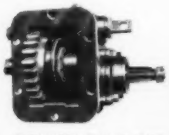
PILLOW BLOCK
HANGER BEARING



POWER TAKE-OFF
2 forward, 1
reverse speed



POWER TAKE-OFF
1 forward, 1
reverse speed



POWER TAKE-OFF
1 speed, heavy duty

ADAPTOR ASSEMBLY
For deep mounted
Transmission gears

ADJUSTABLE HANGER
BEARING ASSEMBLY

HANGER BEARING
ASSEMBLY

# MORE TULSA* WINCHES
# MORE INDUSTRIES
# MORE TERRITORIES

## Distributors FOR TULSA WINCHES

**ALABAMA**
Kimerling Truck & Parts Co., Inc., Birmingham
Robinson Truck & Equipment Co., Mobile

**ARKANSAS**
Southern Equipment Company, Fort Smith
Southern Equipment Co., N. Little Rock

**ARIZONA**
Welch Manufacturing Company, Phoenix

**CALIFORNIA**
Modern Vehicle Company, San Francisco
Rankin Brothers, Lynwood
Standard Auto-Body Co., Inc., Los Angeles

**COLORADO**
The Winter Weiss Company, Denver 2

**CONNECTICUT**
Truck Equipment Company, Inc., Norwalk
Truck Industries, Inc., Greenwich
Curran-Waring Equipment Co., Inc., Norwalk

**DISTRICT OF COLUMBIA**
Watson Automotive Equipment Co., Washington

**FLORIDA**
Miller Truck Equipment Company, Miami
Rivers Body Factory, Jacksonville
West Florida Equipment Company, Marianna

**GEORGIA**
Truck Parts Company, Inc., Atlanta

**ILLINOIS**
Auto Truck Equipment Sales, Chicago
Drake-Scruggs Equipment Co., Springfield
Bill Montgomery Body and Trailer, Salem
Nix Brothers, Olney
Scruggs-Drake Equipment Company, Decatur
Voltz Brothers, Inc., Chicago

**INDIANA**
South Side Equipment Company, Indianapolis
Truck Equipment Sales, Fort Wayne
Roy C. Whayne Supply Company, Evansville

**IOWA**
F. Colin & Sons, Inc., Cedar Rapids
Pecaut Industrial Supply Company, Sioux City
Weston Dump Body Company, Des Moines

**IDAHO**
The Lang Company, Inc., Boise

**KANSAS**
Truck Parts and Equipment, Inc., Wichita 11

**KENTUCKY**
Roy C. Whayne Supply Company, Louisville
Roy C. Whayne Supply Company, Paducah

**LOUISIANA**
Dealers Truck Equipment Company, Inc., Shreveport
Massart Tire & Supply, Lafayette
Massart Tire & Supply, Lake Charles

**MARYLAND**
Watson Automotive Equipment Company, Baltimore

**MASSACHUSETTS**
Springfield Commercial Body Co., Inc., Cambridge
Truck Supply Company, Inc., W. Springfield

**MICHIGAN**
Ashton Power Wrecker Equipment Co., Inc., Detroit
I. H. Gingrich and Sons, Grand Rapids
Swift Body and Equipment Co., Inc., Saginaw

**MINNESOTA**
Bacheller and Dunn, Inc., Duluth 6
Smith-Dunn Company, Inc., Minneapolis

**MISSISSIPPI**
A. P. Lindsey, Distributor, Inc., Jackson

**MISSOURI**
The Ashton-Richards Company, Kansas City
Bailey Auto Body Company, St. Louis
Cunningham Equipment Company, Springfield
Rothschild's Iron and Metal Works, Joplin

**MONTANA**
Smith Equipment Company, Great Falls

**NEBRASKA**
Badger Body Manufacturing Company, Omaha
Highway Equipment and Supply Co., Lincoln 1

**NEW JERSEY**
Auto Truck Equipment Company, Paterson 1
Adam Black & Sons, Inc., Jersey City
Transportation Equipment Co., Inc., Newark

**NEW MEXICO**
M. & F. Equipment Company, Albuquerque
Watson Truck and Supply, Hobbs

**NEW YORK**
Binghamton-Heil Equipment Corp., Endwell
Brinberg Body Builders, Long Island City
Maday Body and Equipment Corp., Buffalo
Midway Parts and Service Co., Albany 5
Syracuse Auto Parts, Inc., Syracuse

**NORTH CAROLINA**
Mitchell Distributing Company, Inc., Raleigh
Mitchell Distributing Company, Inc., Spruce Pine
Twin-States Equipment Company, Charlotte

**NORTH DAKOTA**
Smith, Incorporated, Fargo

**OHIO**
The Melvin L. Aston Welding Company, Cincinnati
The Carnegie Body Company, Cleveland
The Dayton Wood Products Company, Dayton
Hercules Body Sales Company, Columbus
Middlekauff, Inc, Toledo
Zanesville Tool and Supply Company, Wooster
Zanesville Tool and Supply Company, Zanesville

**OKLAHOMA**
American Body and Trailer, Inc., Oklahoma City
American Body and Trailer, Inc., Tulsa
Leland Equipment Company, Oklahoma City
Leland Equipment Company, Tulsa

**OREGON**
Jack Helser Machinery Company, Portland

**PENNSYLVANIA**
Doerr Brothers, Inc., Pittsburgh
Fowler and Fowler, Inc., Oil City
Wm. & Harvey Rowland, Inc., Philadelphia
Trailco Mfg. & Sales Co., Hummel's Wharf

**SOUTH DAKOTA**
Pecaut Industrial Supply Company, Sioux Falls

**TENNESSEE**
Furlow Cate, Inc., Chattanooga
Martin Machinery and Supply Company, Knoxville 1
Martin Machinery and Supply Company, Nashville
Rogers Manufacturing Co., Inc., Nashville
Scruggs Equipment Company, Memphis

**TEXAS**
Adams Truck Company, Inc., San Antonio
American Body and Trailer, Inc., Amarillo
City Welding Shop, Borger
Commercial Truck Company, Lubbock
Alex Feigelson Company, Beaumont
French Tool and Supply Co., Odessa
Hobbs Trailer Sales Company, El Paso
Leland Equipment Company, Longview
Don Maxwell Company, Odessa
Motor Truck Equipment Corp., Dallas
Motor Truck Equipment Corp., Fort Worth
Oilfield Truck Equipment Company, Houston
Truckers Equipment, Inc., Corpus Christi
Wichita Engineering Company, Wichita Falls

**UTAH**
The Lang Company Inc., Salt Lake City

**VIRGINIA**
Smith-Moore Body Company, Inc., Richmond
Transit Trailer Company, Portsmouth

**WASHINGTON**
Andrews Equipment Service of Wash., Inc., Spokane
Andrews Machinery of Wash., Inc., Seattle

**WEST VIRGINIA**
West Virginia Tractor and Equipment Co., Inc., Charleston

**WISCONSIN**
Mullins Body, Inc., Milwaukee
Northern Truck Service, Green Bay

**WYOMING**
Gehring Equipment Company, Casper

**FOREIGN COUNTRIES**

**CANADA**
Ferguson Supply Alberta Limited, Calgary, Alta.
Truck Parts & Equipment Ltd., Vancouver, B. C.
Willock Distributing Company, Vancouver, B. C.
Phil Wood Industries Limited, Windsor, Ontario

**MEXICO**
Auto Servicio, S. A., Mexico, D. F.

**NEW ZEALAND**
Motor Specialties Ltd., Auckland, C.I.

**VENEZUELA**
Joaquin Avellan, Caracas

**BRITISH WEST INDIES**
Neal & Massy Engineering Company Ltd., Trinidad

**AFRICA**
W. S. Thomas and Taylor Lt., Union of S. Africa, c/o J. A. Ewing & McDonald, Inc., New York 16, N. Y.

**HAWAII**
A. F. Stubenberg Ltd., Honolulu 13

***For detailed information please write your nearest distributor or direct to Tulsa Winch***

Tulsa Winch
TULSA, OKLAHOMA DIVISION OF VICKERS Inc.

*Reg. U. S. Pat. Off.

THE WORLD'S LARGEST MANUFACTURER OF TRUCK POWER WINCHES

## GAS-PROCESSING PLANTS

### NATURAL GAS PROCESSING PLANT BUILDING PROJECTS (Continued)

| | | | | |
|---|---|---|---|---|
| Magnolia Petroleum Co., Grady County, Oklahoma: Pressure maintenance and cycling, cu. ft. per day | 25,000,000 | Building | 1950 | Delta Engineering, Construction Service Co. |
| Magnolia Petroleum Co., Jackson County, Texas: Compressor station, cu. ft. per day | 15,000,000 | Building | Early '50 | F. S. West Co. |
| Magnolia Petroleum Co., Grant County, Kansas: Natural-gasoline plant, cu. ft. per day | 100,000,000 | Building | | Walco Engineering Const. Co. |
| Magnolia Petroleum Co., Stephens County, Oklahoma: Natural-gasoline plant, cu. ft. per day | 30,000,000 | Building | Early '50 | Jones & Laughlin Supply Co. |
| Magnolia Petroleum Co., Grady County, Oklahoma: Natural-gasoline and cycling plant, cu. ft. per day | 30,000,000 | Building | Early '50 | Construction Service Co. |
| McKamie Gas Cleaning Co., McKamie, Ark.: Distillate and gasoline | 50,000,000 | Authorized | 1950 | |
| Northern Natural Gas Co., Sublette, Kans.: Absorption, cu. ft. per day | 265,000,000 | Building | Mar. '50 | J. F. Pritchard & Co. |
| Northern Natural Gas Co., Eunice, N. M.: Storage and loading rack, bbl. per day | 8,000 | Building | Jan. '50 | Dresser Engineering Co. |
| Northern Natural Gas Co., Cement, Okla.: Compressor station, cu. ft. per day | 40,000,000 | Building | Jan. '50 | Dresser Engineering Co. |
| Northern Natural Gas Co., White Deer, Tex.: Compressor station, hp. | 600 | Building | Jan. '50 | Dresser Engineering Co. |
| Compressor station, hp. | 900 | Building | Jan. '50 | Dresser Engineering Co. |
| Paloma Operators Unit, Bakersfield, Calif.: Absorption plant, cu. ft. per day | 60,000,000 | Building | June '50 | C. F. Braun & Co. |
| Phillips Petroleum Co., Edmond, Okla.: Increase gasoline plant, cu. ft. per day | 60,000,000 | Building | Apr. '50 | Refinery Maintenance Co. |
| Pure Oil Co., Andrews County, Texas: Natural-gasoline plant, cu. ft. per day | 25,000,000 | Building | July '50 | Hudson Engineering Co. |
| Pure Oil Co., Worland, Wyo.: Crude stabilization and L.P.G., cu. ft. per day | 20,000,000 | Building | Apr. '50 | |
| Shell Oil Co., Kern County, California: Gasoline plant | | | | |
| Shell Oil Co., Lavaca County, Texas: Distillate and gas-processing plant, cu. ft. per day | 60,000,000 | Building | Mid '50 | Fluor Corp. |
| Southern Minerals Corp., Nueces County, Texas: Absorption and pressure-maintenance unit, cu. ft. per day | 56,000,000 | Building | Jan. '50 | Process Engineers, Inc. |
| Stanolind Oil & Gas Co., Hockley County, Texas: Gasoline plant, cu. ft. per day | 40,000,000 | Building | Feb. '50 | Brown & Root, Inc. |
| Stanolind Oil & Gas Co., Andrews County, Texas: Gasoline plant, cu. ft. per day | 38,000,000 | Building | Feb. '50 | Jones & Laughlin Supply Co. |
| Stanolind Oil & Gas Co., North Cowden field, Ector County, Texas: Gasoline plant, cu. ft. per day | 50,000,000 | Building | June '50 | Stearns-Roger Mfg. Co. |
| Sun Oil Co., Egan, La.: Natural-gasoline plant | | Authorized | | |
| Superior Oil Co., Colorado County, Texas: Injection unit | | Authorized | | |
| Taylor Refining Co., McAllen, Tex.: Cycling plant, cu. ft. per day | 75,000,000 | Building | Late '49 | Gasoline Plant Const. Corp. |
| Texas Co., Archer City, Tex.: Natural-gasoline plant, cu. ft. per day | 35,000,000 | Building | Late '49 | O. L. Olsen |
| Texas Pacific Coal & Oil Corp., Goldsmith field, Texas: Gas desulfurization unit | | Building | Jan. '50 | |
| Union Oil Co. of California, Brea Olinda field, California: Increase absorption facilities, cu. ft. per day | 6,000,000 | Considering | | |
| Union Oil Co. of California, Montebello, field, California: Crude-oil stabilizer and gas-absorption plant, cu. ft. per day | 1,000,000 | Considering | | |
| United Gas Pipe Line Co., Karnes County, Texas: Natural-gasoline plant, cu. ft. per day | 10,000,000 | Building | Feb. '50 | Delta Engineering Co. |

### GAS PROCESSING PLANTS COMPLETED IN 1949

| | |
|---|---|
| American Republics Corp., Hardin County, Texas: Extend injection system | |
| Gasoline plant, cu. ft. per day | 58,500,000 |
| Apache Gasoline Co., Caddo County, Oklahoma: High-pressure absorption, cu. ft. per day | 3,500,000 |
| Arkansas Fuel Oil Co., Greggton, Tex.: Increase propane recovery | * |
| Arkansas Fuel Oil Co., Panola County, Texas: Gasoline-plant capacity increase to, cu. ft. per day | 100,000,000 |
| Arkansas Fuel Oil Co., Waskom, Tex.: Gasoline-plant capacity increase to, cu. ft. per day | 72,000,000 |
| Increase plant capacity, cu. ft. per day | 30,000,000 |
| Arkansas Fuel Oil Co., Jefferson, Tex.: Gasoline-plant capacity increase to, cu. ft. per day | 46,000,000 |
| Arkansas Fuel Oil Co., Bienville Parish, Louisiana: L.P.G. capacity increase to, cu. ft. per day | 35,000,000 |
| Arkansas Fuel Oil Co., Magnolia, Ark.: Increase low-pressure gas input, cu. ft. per day | 5,000,000 |
| Atlantic Refining Co., Crane, Tex.: Natural-gas processing plant, cu. ft. per day | 20,000,000 |
| Baldridge & King, San Pablo, Tex.: Pressure maintenance plant, cu. ft. per day | 2,500,000 |
| Barnsdall Oil Co., McFaddin, Tex.: Compressor station, hp. | 1,500 |
| Barnsdall Oil Co., Bloomington, Tex.: Dehydration plant, cu. ft. per day | 10,000,000 |
| Barnsdall Oil Co., Newhall, Calif.: Gasoline-plant expansion, cu. ft. per day | 40,000,000 |
| California Co., Hico, La. Gasoline plant | 100,000,000 |
| California Co., Brookhaven, Miss.: Gasoline plant, cu. ft. per day | 10,000,000 |
| Carter Oil Co., McKamie, Ark.: Compression plant, cu. ft. per day | 38,000,000 |
| Claiborne Gasoline Co., Lisbon, La.: Plant addition, cu. ft. per day | 50,000,000 |
| Carthage Corp., Carthage, Tex.: Gasoline plant, cu. ft. per day | 100,000,000 |
| Carthage Corp., Carthage, Tex.: Natural-gas processing plant, cu. ft. per day | 385,000,000 |
| Cities Service Oil Co., Wise County, Texas: Natural-gasoline plant, cu. ft. per day | 22,500,000 |
| Cities Service Oil Co. (Del.), Pampa, Tex.: Gasoline-plant expansion, cu. ft. per day | 18,000,000 |
| Columbian Fuel Corp., Hickok, Kans.: Natural gas desulfurization, cut. ft. per day | 2,000,000 |
| Continental Oil Co., Crockett County, Texas: Gasoline plant, cu. ft. per day | 10,000,000 |
| Continental Oil Co., Starr County, Tex.: Enlarge gasoline plant, cu. ft. per day | 20,000,000 |
| Drillers Gas Co., Burrton, Kans.: Desulfurization unit, cu. ft. per day | 4,000,000 |
| El Paso Natural Gas Co., Denver City, Tex.: Purification unit, cu. ft. per day | 70,000,000 |
| El Paso Natural Gas Co., Goldsmith, Tex.: Purification unit, cu. ft. per day | 50,000,000 |

# BLOOMING AGENTS
## FLUORESCENT COLORS
### *for*
### Solvent extracted and additive compounded lube oils

•

*"PETROL" colors for gasoline, kerosene, diesel and tractor fuels:*

**BRONZES · AMBERS · BLUES · GREENS · GOLDS · YELLOWS**
**PURPLES · ORANGES · REDS · BROWNS · BLACKS**

•

***SPECIAL PRODUCTS***
***FOR THE PETROLEUM INDUSTRY***

**PETROL BLUE WHITENER R and B are used to neutralize undesirable yellow shades in uncolored gasoline or kerosene.**

**DEBLOOMING AGENT A has the property of neutralizing blooms in lubricating oils.**

**N. P. A. COLOR has the property of changing body color of pale oils to red cast without affecting natural fluorescence.**

**COLOR SOLVENT No. 9 increases brilliance and solubility of colors in waxes and oils.**

•

***GASOLINE ADDITIVES***

**INHIBITORS FOR GASOLINE, OILS, RUST . . . HIGH PRESSURE LUBRICANTS, STABILIZERS, EMULSIFIERS, DETERGENTS, WETTING AGENTS, DISPERSING AGENTS.**

**The "PATENT" laboratories and technical staff are available for the development of special colors or for the solution of any color problem.**

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**25 years continuous manufacturing of colors for the petroleum industry**

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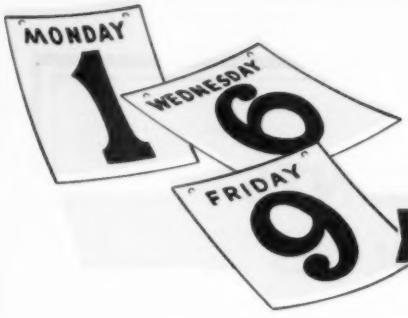
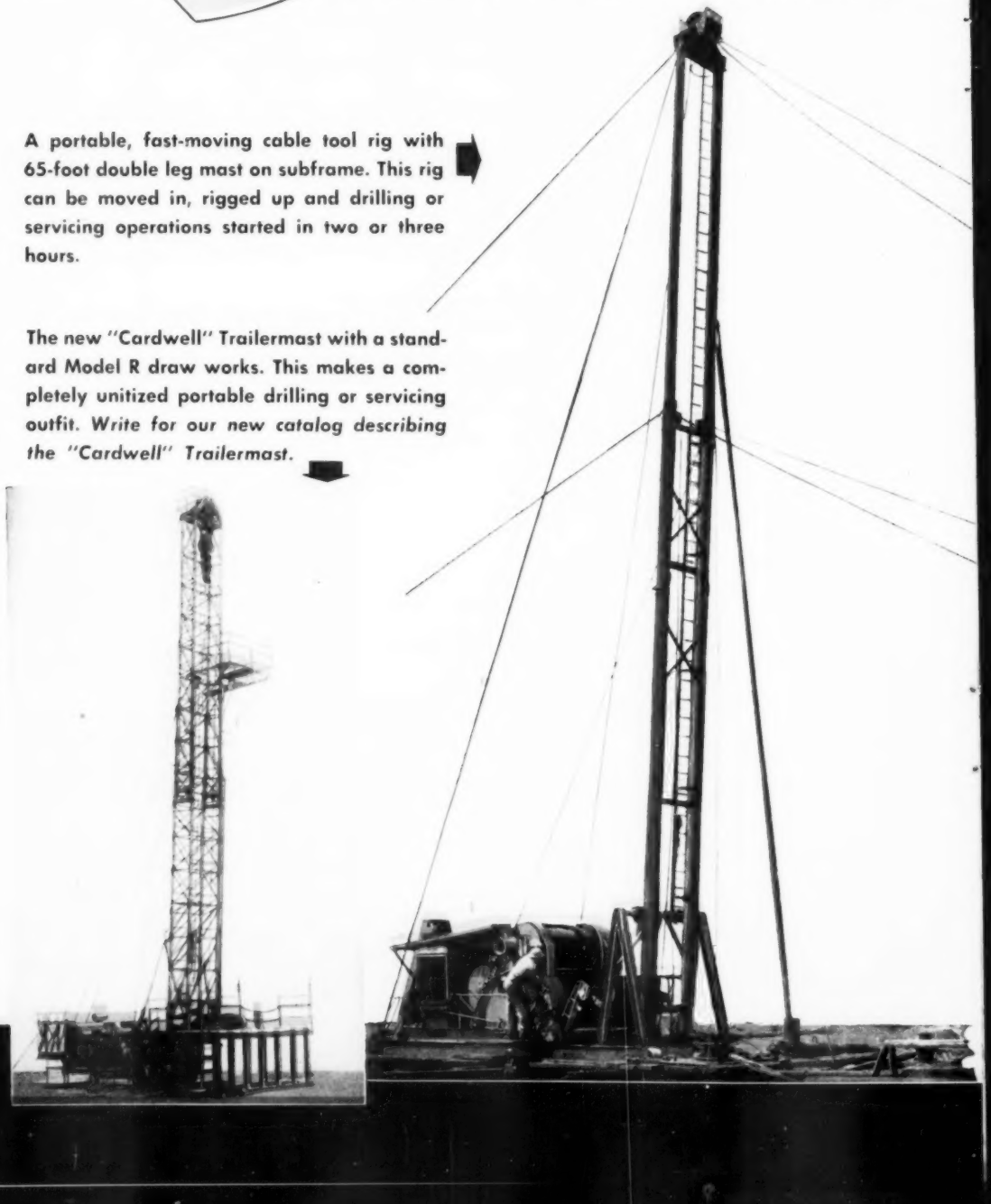



# DAY IN

## You Can Make More Money

A portable, fast-moving cable tool rig with 65-foot double leg mast on subframe. This rig can be moved in, rigged up and drilling or servicing operations started in two or three hours.

The new "Cardwell" Trailermast with a standard Model R draw works. This makes a completely unitized portable drilling or servicing outfit. *Write for our new catalog describing the "Cardwell" Trailermast.*

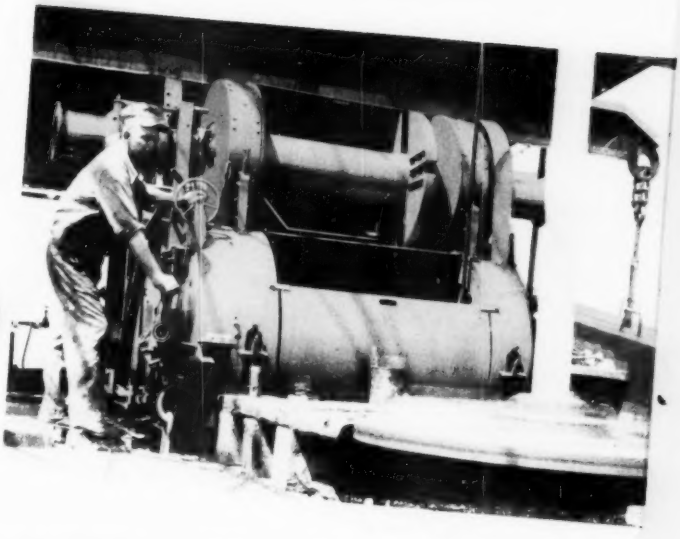


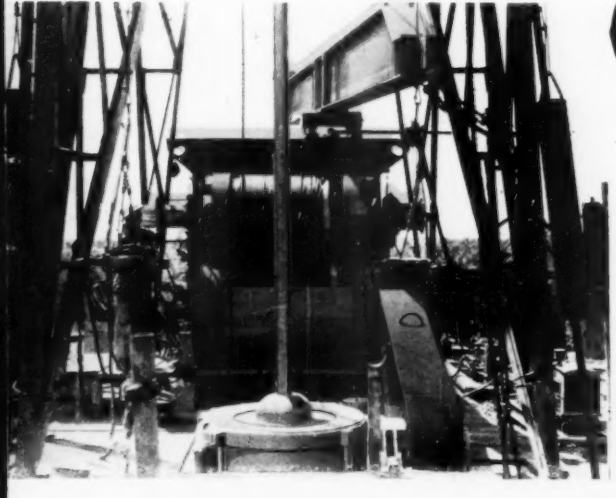
# AND DAY OUT

## with a "CARDWELL" Combination Rig...

The real profit advantage of this "Cardwell" rig is its versatility. You can keep this combination rig busy because it does every kind of drilling or servicing job with either rotary or cable tools. The same rig can be changed over in a few hours to either rotary table drive or spudding assembly.

Model R equipped as a double drum draw works. This is the same basic rig as the double spudder shown on the opposite page. The rotary rig can be changed over to cable tool operations to "tail in" for a better producing well in low pressure areas.





A Model R equipped with rotary drive and a beam assembly. Both assemblies are in place and ready for use in a few minutes. No change in equipment is necessary to switch from rotary to cable tools. The heavy-duty beam is ideal for cable tool drilling and pumping potentials. The complete rig can be easily transported on a truck or trailer.

Three sizes of "Cardwell" combination drilling rigs are available for cable tool drilling to 7,500 feet, and rotary drilling with 4½-inch pipe to 4,500 feet. *Send today for our new catalog.*

"Cardwell's" reputation in all fields for building "Tough Iron" comes from the use of Alloy steels and heat-treatment. This "know how" cannot be copied.

CARDWELL

REG. U. S. TRADE MARK PAT. OFFICE

THIS TRADE MARK INSURES HIGHEST QUALITY AT LOWEST PRICE

**CARDWELL MFG. CO. INC.**

P. O. Drawer 2001 . . . Long Distance Telephones 128—129—130

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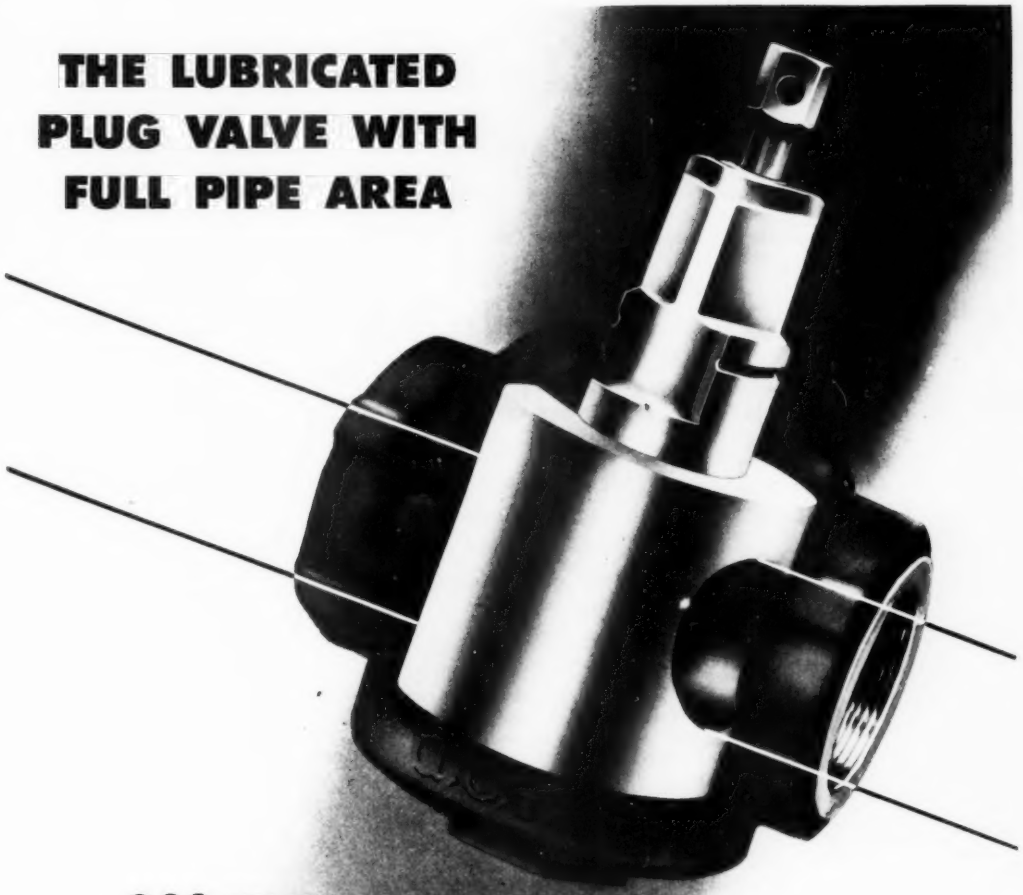
Wichita, Kansas, U. S. A.

## GAS-PROCESSING PLANTS

### GAS PROCESSING PLANTS COMPLETED IN 1949 (Continued)

General Petroleum Corp., Washakie County, Wyoming:
Recycling plant, cu. ft. per day 3,000,000
Grimes, Otha H., Trent, Tex.:
Absorption plant, cu. ft. per day 2,000
Gulf Oil Corp., Eunice, N. M.:
Gas-processing plant, cu. ft. per day 50,000,000
Gulf Oil Corp., Keifer, Okla.:
Extend gasoline plant, cu. ft. per day 11,000,000
Humble Oil & Refining Co., Opelousas, La.:
Natural-gasoline plant, cu. ft. per day 110,000,000
Humble Oil & Refining Co., Pickton, Tex.:
Pressure-maintenance and gasoline plant, cu. ft. per day 30,000,000
Humble Oil & Refining Co., Seeligson field, Texas:
Gas-injection plant, cu. ft. per day 20,000,000
Humble Oil & Refining Co., Conroe, Tex.:
Enlarge gasoline plant to, cu. ft. per day 30,000,000
Humble Oil & Refining Co., Katy, Tex.:
Additional propane absorption facilities
Humble Oil & Refining Co., Kelsy field, Texas:
Gas-injection plant, cu. ft. per day 18,000,000
La Gloria Corp., Jim Wells County, Texas:
Natural-gasoline plant, cu. ft. per day 30,000,000
Lea County Water Co., Oil Center, N. M.:
Expand desulfurization unit, cu. ft. per day 15,000,000
Lion Oil Co., El Dorado, Ark.:
Expanded chemical facilities, tons per day 600
Lion Oil Co., Magnolia field, Arkansas:
Dehydration unit, cu. ft. per day 15,000,000
Lion Oil Co., Bryceland, La.:
Dehydration unit, cu. ft. per day 25,000,000
Lion Oil Co., Schuler, Ark.:
Gas treater, cu. ft. per day 2,000,000
Combination gas and liquid desulf. unit, cu. ft. per day 2,000,000
Lone Star Gas Co., Henderson County, Texas:
Additional L.P.G. equipment, gal. per day 6,000
Lytle, Robert S., Coalinga, Calif.:
Hydrogen sulfide removal unit, cu. ft. per day 33,000,000
Magnolia Petroleum Co., Seeligson field, Texas:
Cycling plant, cu. ft. per day 220,000,000
Magnolia Petroleum Co., Kilgore, Tex.:
Increased propane recovery
Magnolia Petroleum Co., Seeligson field, Texas:
Natural-gasoline plant, cu. ft. per day 56,000,000
McCarthy Chemical Co., Winnie, Tex.:
Second absorption plant unit, cu. ft. per day 100,000,000
Mid-Continent Petroleum Corp., Okfuskee County, Oklahoma:
Gasoline plant, gal. per day 10,000
McCarthy Chemical Co., Winnie, Tex.:
Chemical plant, lb. per day 200,000
Northern Natural Gas Co., Bushton, Kans.:
Compressor-station extension, hp. 1,600
Northern Natural Gas Co., Mullenville, Kans.:
Compressor-station extension, hp. 1,600
Northern Natural Gas Co., Sublette, Kans.:
Increase compressor station, hp. 3,200
Northern Utilities Co., Rock Springs, Wyo.:
Natural-gas desulfurization, cu. ft. per day 7,000,000
Odessa Natural Gasoline Co., Odessa, Tex.:
Enlarge gasoline plant, gal. per day 26,000
Ohio Oil Co., South Coles Levee, Calif.:
Gas lift, hp. 1,800
Panhandle Producing Co., Hutchinson County, Texas:
Desulfurization unit, cu. ft. per day 2,750,000
Parade Company, Overton, Tex.:
Increase capacity, propane recovery, gal. per day 12,500
Phillips Chemical Co., Port Adams, Houston:
Ammonium sulfate plant, tons per year 266,000
Phillips Petroleum Co., Goldsmith, Tex.:
Expand gasoline-plant capacity, cu. ft. per day 40,000,000
Phillips Petroleum Co., Andrews, Tex.:
Expand gasoline-plant capacity by, cu. ft. per day 24,000,000
Phillips Petroleum Co., Oil Center, N. M.:
Expand gasoline-plant capacity by, cu. ft. per day 16,000,000
Phillips Petroleum Co., Guymon, Okla.:
Natural-gasoline plant, cu. ft. per day 173,000,000
Phillips Petroleum Co., Caddo County, Oklahoma:
Repressuring plant
Plymouth Oil Co., Upton County, Texas:
Natural-gasoline plant, cu. ft. per day 80,000,000
Portland Gasoline Co., Pampa, Tex.:
Deethanizer tower and propane storage
Pure Oil Co., Worland, Wyo.:
Gasoline-absorption plant
Reno Oil Co., Holiday, Tex.:
Pressure-maintenance plant, hp. 400
Republic Oil Refining Co., Benavides, Tex.:
Gasoline plant, cu. ft. per day 10,000,000
Richardson & Bass, Kermit, Tex.:
Gasoline plant, cu. ft. per day 130,000,000
Shamrock Oil & Gas Corp., Liberal, Kans.:
Blending plant, bbl. per day 2,000
Shell Oil Co., Inc., Ventura, Calif.:
Increase gasoline plant, gal. per day 60,000
Shell Oil Co., Inc., TXL field, Texas:
Gasoline-plant extension, cu. ft. per day 45,000,000
Shell Oil Co., Notrees, Tex.:
Natural-gasoline plant, cu. ft. per day 60,000,000
Shell Oil Co., Denver City, Tex.:
Natural-gasoline plant, cu. ft. per day 66,000,000
Sid Richardson Gasoline Co., Keystone field, Texas:
Gasoline plant, cu. ft. per day 115,000,000
Skelly Oil Co., Eunice, N. M.:
Increase gasoline plant, gal. per day 60,000
Slick-Urschel Oil Co. and Texas Natural Gasoline Corp., Pecos County, Texas:
Natural-gasoline plant, cu. ft. per day 30,000,000
Southern Minerals Corp., Stratton field, Texas:
Natural-gasoline plant, cu. ft. per day 56,000,000
Southern Union Gas Co., Kutz Canyon field, New Mexico:
Gasoline plant, cu. ft. per day 20,000,000
Southwest Gas Producing Co., Inc., Dubach, La.:
Natural-gas processing plant, cu. ft. per day 90,000,000
Standard Oil Co. of California, Cymric, Calif.:
Absorption plant, gal. per day 42,000
Standard Oil Co. of Texas, Sivells Bend, Tex.:
Natural-gasoline plant, gal. per day 30,000
Stanolind Oil & Gas Co., Hockley County, Texas:
Gasoline plant, cu. ft. per day 90,000,000
Stanolind Oil & Gas Co., Park County, Wyoming:
Gasoline plant, cu. ft. per day 12,000,000
Stanolind Oil & Gas Co., Grant County, Kansas:
Natural-gasoline plant, cu. ft. per day 100,000,000
Stanolind Oil & Gas Co., Bee County, Texas:
Cycling plant, cu. ft. per day 166,000,000
Stanolind Oil & Gas Co., Levelland, Tex.:
Gasoline plant, cu. ft. per day
Sun Oil Co., Chacahoula, La.:
Compressor plant, cu. ft. per day 2,500,000
Sun Oil Co., N. Cankton, La.:
Compressor plant, cu. ft. per day 1,300,000
Sun Oil Co., Shuteston, La.:
Compressor plant, cu. ft. per day 2,750,000
Sun Oil Co., Starr County, Texas:
Pressure-maintenance, natural-gasoline unit, cu. ft. per day 35,000,000
Sun Oil Co., Coke County, Tex.:
Natural-gasoline plant, cu. ft. per day 10,000,000
Texas Natural Gasoline Co., Jones County, Texas:
Gasoline plant, cu. ft. per day 4,500,000
Texas Co., Electra, Tex.:
Absorption plant, cu. ft. per day 2,000,000
Texas Gulf Sulphur Co., Washakie County, Wyoming:
Sulfur-extraction plant
Texhoma Natural Gas Co., Moore County, Texas:
Gas-compression plant, cu. ft. per day 90,000,000
Union Oil Co. of California, Grimes Canyon, California:
Gas-injection plant, cu. ft. per day 3,000,000
Union Oil Co. of California, Lompoc field, California:
Increase gas-injection plant, cu. ft. per day 1,500,000
United Gas Pipe Line Co., Carthage, Tex.:
Gasoline plant, cu. ft. per day 100,000,000
United Gas P. L. Co., Panola, Tex.:
Increase plant capacity, cu. ft. per day 250,000,000
Universal Gasoline Co., Madill, Okla.:
Gasoline plant, cu. ft. per day 6,000,000
Warren Petroleum Co., Madill, Okla.:
Expand plant, cu. ft. per day 20,000,000
Warren Petroleum Corp., Holliday, Tex.:
Expand plant, cu. ft. per day 20,000,000
Warren Petroleum Corp., Taylor's Corner, Tex.:
Gasoline plant, cu. ft. per day 6,000,000
Warren Petroleum Corp., Jacksboro, Tex.:
Gasoline plant addition, cu. ft. per day 3,000,000
Warren Petroleum Corp., Gladewater, Tex.:
Additional L.P.G. facilities, cu. ft. per day 20,000,000
Warren Petroleum Corp., Maysville, Okla.:
Gasoline plant, cu. ft. per day 80,500,000
Warren Petroleum Corp., et al., Antioch, Okla.:
Natural-gas processing plant, cu. ft. per day 31,500,000
Warren Petroleum Corp., et al., Lindsay, Okla.:
Natural-gas processing plant, cu. ft. per day 36,500,000
Warren Petroleum Corp., Mayesville, Okla.:
Gasoline plant, cu. ft. per day 4,500,000
Wescol Oil & Gas Co., Nordheim, Tex.:
Cycling plant, cu. ft. per day 25,000,000
West Texas Gas Co., Plainview, Tex.:
Addition to compressor station, hp 300
West Texas Gas Co., Tahoka, Tex.:
Addition to compressor station, hp 300
West Texas Gas Co., Fritch, Tex.:
Revise gasoline plant
Western Natural Gas Co., Live Oak County, Texas:
Cycling plant, cu. ft. per day 30,000,000
Wilmington Gasoline Co., Wilmington, Calif.:
Deethanizer unit, gal. per day 18,000

# THE LUBRICATED PLUG VALVE WITH FULL PIPE AREA



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**makes it possible. Straight-through openings result in smooth, non-turbulent flow, lowest head loss, reduced valve abrasion. Yet compact valve construction is retained in both rectangular and round-port types. Reason enough for a.c.f. Lubricated Plug Valve preference.**

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It was 1912—and Arizona was admitted to Statehood as the 48th State—when we introduced "Flexitallic," the *original* Spiral-Wound Gasket, and opened to industry new fields of opportunity in the confining of fluids at high pressures and high temperatures.

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What does it cost you when a high-pressure gasket fails? . . . In danger to personnel . . . damage to equipment . . . loss of operating time? Calculate the cost—*total*—and then decide whether you can afford to use anything less than the safest high-pressure seal.

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When you specify Flexitallic Gaskets, you set in motion scientifically devised controls for the determination of yield values, resilience and gasket density. You can see the results of Flexitallic precision — greater safety, gasket efficiency and economy of operations.

If you are *seriously* concerned with confining fluids safely and *do not know from experience* of the superior performance of Flexitallic Spiral-Wound Gaskets, write us on your company letterhead, giving us the following facts regarding your sealing requirements:

- (1) Fluid to be confined
- (2) Type of flange and dimensions
- (3) Operating pressures and temperatures
- (4) Bolting data

Within a few days you will receive a *genuine* Flexitallic Spiral-Wound Gasket with our compliments. Subject it to the most severe tests—in the laboratory or on the job . . . let your own *experience* tell you why nearly every industry *seriously* concerned with safe seals of high pressures and high temperatures is standardized on *genuine Flexitallic* Gaskets.

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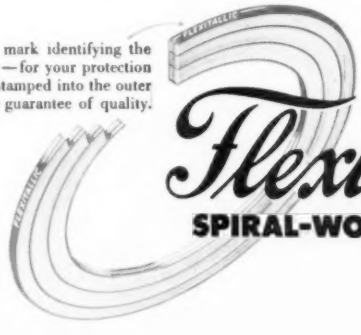


Flexitallic®
SPIRAL-WOUND GASKETS

# U. S. Pipe-Line Systems Gain 15,000 Miles During 1949

**by Paul Reed**

MORE than 15,000 miles of pipe were laid for petroleum and natural-gas lines in the United States during 1949. This is an increase of 50 per cent over 1948, and over postwar annual rate of 10,000 miles. The scale of pipe-line construction promises to be even greater in 1950.

Throughout the world, 1949 saw completion of projects totaling 19,570 miles of pipe, some of which were started the previous year. Of the total, 16,340 miles were in the United States and 3,230 miles abroad. World-wide construction under way or scheduled totals approximately 40,000 project miles.

By the middle of the year, capacity for making line pipe will be increased nearly 30 per cent by the completion of several new plants, amplifying supplies for 1950 world-wide construction of possibly 15,000 to 20,000 miles.

Natural-gas projects dominate the situation, accounting for 10,500 miles of lines completed in 1949 and 22,950 miles under way and planned for the future in the United States. This year most of the gas-line work will be for new trunk lines and looping of existing systems for transmission from Texas to the northeastern states, the Great Lakes area, and California. In 1951 and 1952 it is expected that extensive construction will be under way on lines for invading New England, which now gets no natural gas.

The largest crude-oil pipe-line projects will be built this year to serve foreign countries. Canadian activity looms large, with the Interprovincial-Lakehead 1,150-mile outlet for western Canada and the Portland-Montreal 234-mile loop, both of which overlap into the United States; they are both to be built entirely in the 1950 construction season. In the Middle East, construction is being pushed at both ends of the Trans-Arabian 1,067-mile line. A shift in plans results in the Iraq Petroleum Co. 556-mile, 30-in. Kirkuk-Banias line being started this year ahead of the Middle East Pipe Lines, Ltd., 800-mile, 34-36-in. Iran-Levantine port project which has been delayed.

**TABLE 1—PRINCIPAL DOMESTIC CRUDE-OIL PIPE-LINE PROJECTS UNDER WAY AND PLANNED**

| Company— | Miles | Inch | Status | Contractor, location, and completion date |
|---|---|---|---|---|
| Arizona Pipe Line Co. | 600 | 8 | Proposed | Permian basin-Phoenix, Ariz. |
| Humble Pipe Line Co. | 371 | 18 | Under way | Anderson Bros., 190 mi., Morrison Const., 180 mi., Kemper Sta. (Reagan County) to Satsuma Sta. (Harris County), Texas. |
| Lakehead Pipe Line Co., Inc.* | 321 | 18 | Contracted | Anderson Bros.—Neche, N. D., to Superior, Wis., 10-15-50. |
| Mid-Valley Pipe Line Co.† (Sun and Sohio) | 1,053 | 20-22 | Under way | Longview, Tex., to Mayersville, Miss.-Covington, Ky., to Lima, Ohio. |
| Mid-Valley Pipe Line Co.† | 34 | 6-8 | Under way | Latex Const.—Stephens, Ark., to Haynesville, La. |
| Mid-Valley Pipe Line Co.† | 110 | 20 | Authorized | Section 1, Longview, Tex., to Haynesville, La. |
| Mid-Valley Pipe Line Co.† | 120 | 20 | Under way | Section 2, Latex Const.—Haynesville, La., to Mississippi River, north of Lake Providence, La. |
| Mid-Valley Pipe Line Co. | 111 | 22 | Contracted | Section 3A, Associated Pipe Line Const.—Mayersville to Oakland, Miss. |
| Mid-Valley Pipe Line Co.† | 222 | 22 | Authorized | Sections 3B, 4A, 4B, 5A, Eastern Const., Inc.—Oakland, Miss., to Clarksville, Tenn. |
| Mid-Valley Pipe Line Co. | 111 | 20 | Contracted | Sections 5B, 6A, Britton Const.—Clarksville, Tenn., to Elizabethtown, Ky. |
| Mid-Valley Pipe Line Co.† | 111 | 22 | Under way | Section 6B, H. L. Gentry—Elizabethtown to Hebron, Ky. |
| Mid-Valley Pipe Line Co.† | 124 | 20 | Under way | Section 7, Britton Const.—Hebron, Ky., to Lima, Ohio. |
| Mid-Valley Pipe Line Co. | 21 | 8 | Contracted | Latex Const.—Magnolia, Ark., to Haynesville, La. |
| Mid-Valley Pipe Line Co.† | 41 | 12 | Under way | Latex Const.—Lateral from Delhi to Lake Providence, La. |
| Pasotex Pipe Line Co. | 32 | 4-6-8 | Authorized | North Snyder, Tex., lines for gathering and delivery to Basin system. |
| Phillips Pipe Line Co. | 25 | 8 | Considered | Loops between Thrall, Kans., and Kansas City, Kans. |
| Portland Pipe Line Corp. | 234 | 18 | Contracted | Oklahoma Contr.—Portland, Me.-Gorham, N. Y., 85 mi.; Associated Pipe Line Contr.—Gorham to Canadian boundary, 81 mi.; Fred Mannix, 68 mi., from Canadian boundary to Montreal (for Montreal Pipe Line Co., Ltd.). |
| Richfield Oil Corp. | 40 | 10 | Planned | Bechtel—Cuyama Valley-Newhall, Calif. |
| Richfield Oil Corp. | 60 | 14 | Under way | Newhall-Wilmington, Calif. |
| Socony-Vacuum Oil Co., Inc. (White Eagle Div.) | 122 | 8 | Considered | Big Horn basin to Casper, Wyo. |
| Texas-Empire Pipe Line Co. | 40 | 16 | Contracted | O. E. Burden—Wilmington, Ill., to East Chicago, Ind. |

*Lakehead Pipe Line Co., Inc., project is to be built in connection with the Interprovincial Pipe Line Co. line from Edmonton, Alta. †Mid-Valley Pipe Line program consists of 1,164 miles of 20-22-in., for which 1,053 miles has been contracted in 1949; contract for 110 miles will be let in 1950.

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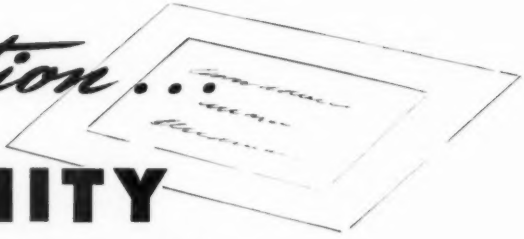
## *and an . . .*
# OPPORTUNITY



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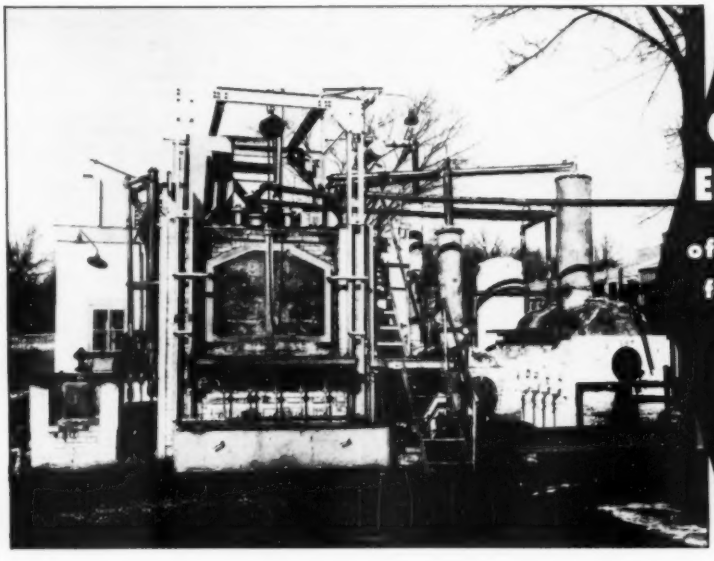

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**offers the improved facilities of its Liquid Hydro-Carbon Coking plant (pilot) for commercial scale tests of your material.**

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## Curran Carbonizing & Engineering Co.

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### TABLE 2—PRINCIPAL DOMESTIC PRODUCTS PIPE LINES UNDER WAY AND PLANNED

| Company— | Miles | Inch | Status | Contractor, location, and completion date |
|---|---|---|---|---|
| Connecticut Pipe Line Co.* | 40 | 8 | Planned | New Haven to Hartford, Conn. |
| Great Lakes Pipe Line Co. | 1,298 | 12 | Planned | Looping from Tulsa north. |
| Great Lakes Pipe Line Co. | 150 | 8 | Planned | Looping. |
| Great Lakes Pipe Line Co. | 64 | 12 | Under way | O. R. Burden Const. Corp.—North from Des Moines. |
| Great Lakes Pipe Line Co. | 72 | 12 | Under way | A. C. Holder Const. Co.—To Iowa-Minnesota state line. |
| Great Lakes Pipe Line Co. | 104 | 12 | Under way | Sheehan Pipe Line Const. Co.—Albert Lea, Minn., to St. Paul. |
| Great Lakes Pipe Line Co. | 20 | 12 | Under way | Williams Brothers Corp.—Mississippi River crossing and line to terminal and station. |
| Great Lakes Pipe Line Co. | 165 | 12 | Planned | Irvington, Neb.-Sioux Falls, S. D. |
| Great Lakes Pipe Line Co. | 236 | 12 | Under way | Pacific Pipe Line & Engineers, Ltd.—Tulsa-Barnsdall-Kansas City, 3-1-50. |
| Great Lakes Pipe Line Co. | 54 | 12 | Under way | A. C. Holder—Ponca City-Barnsdall, Okla., 3-1-50. |
| Phillips Petroleum Co. and Shamrock Oil & Gas Co. | 152 | 6 | Planned | La Junta, Colo., to Denver. |
| Salt Lake Pipe Line Co. | 242 | 8-6 | Planned | Boise, Ida., to Pasco, Wash., 12-50. |
| Standard Oil Co. (Ohio) | 38 | 8 | Authorized | Toledo to Fostoria, Ohio. |

*Deferred.

### TABLE 3—PRINCIPAL DOMESTIC NATURAL-GAS PIPE-LINE PROJECTS UNDER WAY AND PLANNED

| | | | | |
|---|---|---|---|---|
| Alabama-Tennessee Natural Gas Co. | 80 | 10 | Under way | Lehman-Hoge & Scott—Selmer, Tenn., to Muscle Shoals, Ala., 12-31-49. |
| Alabama-Tennessee Natural Gas Co. | 20 | 6 | Authorized | Decatur to Huntsville, Ala. |
| Alabama-Tennessee Natural Gas Co. | 35 | 8 | Authorized | Muscle Shoals to Decatur, Ala. |
| Arkansas Louisiana Gas Co. | 74 | 20 | Under way | Anderson Bros.—Waskom, Tex., to Magnolia, Ark. |
| Atlantic Gulf Gas Co. (United Gas Pipe Line Co.) | 1,530 | | Planned | Alabama-Florida-Georgia-South Carolina. |
| Central Hudson Gas & Electric Corp. | 40 | | Authorized | From Tuxedo, N. Y., connection with Home Gas Co. to Dutchess, Orange, and Ulster counties, New York. |
| Central Kentucky Natural Gas Co. | 38 | 12-20 | Planned | Kentucky loops, 1949. |
| Chicago District Pipe Line Co. | 41 | 24 | Authorized | Loop Calumet Pipe Line—Joliet, Ill., to Chicago, 12-50. |
| Cities Service Gas Co. | 47 | 3-4-16 | Planned | Kansas. |
| Cities Service Gas Co. | 16 | 3-4 | Authorized | Kansas and Missouri. |
| Cities Service Gas Co. | 29 | 16 | Authorized | Wichita to Newton, Kans. |
| City of Indianapolis, Inc. | 55 | 16 | Proposed | Indianapolis to Texas Eastern Transmission Corp. system. |
| Coast Counties Gas & Electric Co. | 40 | 3-4-8 | Considered | Coast and valley region, California. |
| Coastal Pipe Line Co. | 1,000 | | Planned | Texas to Norfolk, Va. |
| Colorado-Wyoming Gas Co. | 41 | | Planned | Greeley, LaSalle, and Windsor, Colo., area. |
| Commonwealth Natural Gas Corp. | 537 | 20 | Proposed | West Bend, Ky., to Norfolk, Va. |
| Consolidated Gas Utilities Corp. | 41 | 12 | Planned | Enid to Blackwell, Okla., Marlow to Cement, Okla. |
| East Tennessee Natural Gas Co. | 185 | 16 | Planned | Walters & Saigh Const.—Lobelville to Chattanooga, Tenn. |
| East Tennessee Natural Gas Co. | 100 | | Planned | Laterals to be laid in 1950. |
| East Tennessee Natural Gas Co. | 120 | 12 | Planned | Walters & Saigh Const.—Chattanooga to Knoxville, Tenn. |
| East Tennessee Natural Gas Co. | 398 | 3-16 | Planned | Nashville-Chattanooga-Knoxville, Tenn., and laterals. |
| Eastern Natural Gas Corp. | 292 | 24 | Proposed | Phoenixville, Pa., via New Haven and Hartford, Conn., Providence, R. I., Springfield, Mass., and Boston. |
| Egyptian Natural Gas Co. | 80 | 6-8 | Planned | Norris City to Salem-Centralia, Ill., area. |
| El Paso Natural Gas Co. | 450 | 30 | Under way | Company crews—Loop of existing 26-in., S.E. New Mexico to Southern Calif., 3-50. |
| El Paso Natural Gas Co. | 352 | 30 | Under way | Company crews—Connect to Pacific Gas & Electric at Needles, Calif., 11-50. |
| El Paso Natural Gas Co. | 450 | 24 | Authorized | San Juan basin, N. M., to Franconia, Ariz., 11-51. |
| Jersey Central Power & Light Co. | 39 | 10 | Planned | New Jersey to Coast System of Texas Eastern Transmission Co.'s Big Inch. |
| Lone Star Gas Co. | 20 | 8-10-12 | Under way | Company crews—Alvord, Snyder, and Scurry counties, Texas, 1-1-50. |
| Michigan Gas Storage Co. | 150 | 20 | Planned | Mahoney Contr. Co.—Chelsea terminal-Winterfield and Cranberry Lake, Mich. |
| Michigan-Wisconsin Pipe Line Co. | 185 | 4 to 14 | Authorized | G. G. Griffis Const. Co.—Milwaukee to Fond du Lac, Oshkosh, Appleton, Green Bay, Sheboygan, Manitowoc, Two Rivers, Wis. |
| Montana-Dakota Utilities Co. | 340 | 12 | Authorized | Worland field, Washakie County, Wyoming, to Cabin Creek Sta., Fallon County, Montana. |
| Northeastern Gas Transmission Co. | 511 | up to 20 | Proposed | To extend from a connection with a proposed Tenn. Gas Trans. Co. extension to serve New England states. |
| Northern Natural Gas Co. | 40 | 26 | Contracted | Loop 1, R. H. Fulton, No. of Skellytown, Tex., station. |
| Northern Natural Gas Co. | 75 | 26 | Contracted | Loop 2, R. H. Fulton, Beaver, Okla., station |
| Northern Natural Gas Co. | 33 | 26 | Contracted | Loop 3, R. H. Fulton, Mullinville, Kans., station |
| Northern Natural Gas Co. | 73 | 26 | Contracted | Loop 4, R. H. Fulton, Bushton, Kans., station |
| Northern Natural Gas Co. | 155 | 20 | Contracted | Loop 5, R. H. Fulton, Garden City-Bushton, Kans., section. |
| Northern Natural Gas Co. | 43 | 26 | Contracted | Loop 6, Midwestern, Palmyra, Neb., station. |
| Northern Natural Gas Co. | 66 | 26 | Contracted | Loop 7, Midwestern, Oakland, Iowa, station. |
| Northern Natural Gas Co. | 31 | 26 | Contracted | Loop 8, R. B. Potashnick, Ventura, Iowa, Sta |
| Northern Natural Gas Co. | 41 | 26 | Contracted | Loop 9, R. B. Potashnick, Ventura, Iowa, Sta |
| Northern Natural Gas Co. | 40 | 26 | Contracted | Loop 10, R. B. Potashnick, Ventura, Iowa, Sta |

# FLUOR has the answer to

# SULFUR ...FROM SOUR

Now, for the first time, the Mathieson *Sasco Process for the commercial recovery of elemental sulfur from waste hydrogen sulfide gas is available to operators of petroleum refineries and natural gasoline plants. An agreement between The Fluor Corporation, Ltd., and Mathieson Chemical Corporation designates Fluor as the sole licensing agent for the engineering and construction of sulfur recovery plants incorporating Mathieson's Sasco Process. All details, including first studies, are available through Fluor.

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Hydrogen sulfide gas in sour residue gas from gas-gasoline operations is a large potential source of elemental sulfur.

**FLUOR**
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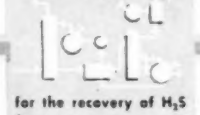

for the recovery of $H_2S$ from sour gases

**SOUR REFINERY GAS**

Hydrogen sulfide gas in sour refinery gas from the processing of sour crude oil is a potential source of elemental sulfur.

**FLUOR**
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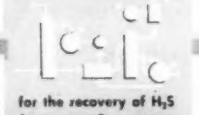

for the recovery of $H_2S$ from sour refinery gases

* *The first Sasco Process Plant was built by Southern Acid and Sulfur Company in 1942. Acquisition of this company by Mathieson Chemical Corporation, and continued research and development by Mathieson personnel mark this process for recovery of sulfur from waste hydrogen sulfide gas as the only one developed in the United States with a record of several years' successful operation.*

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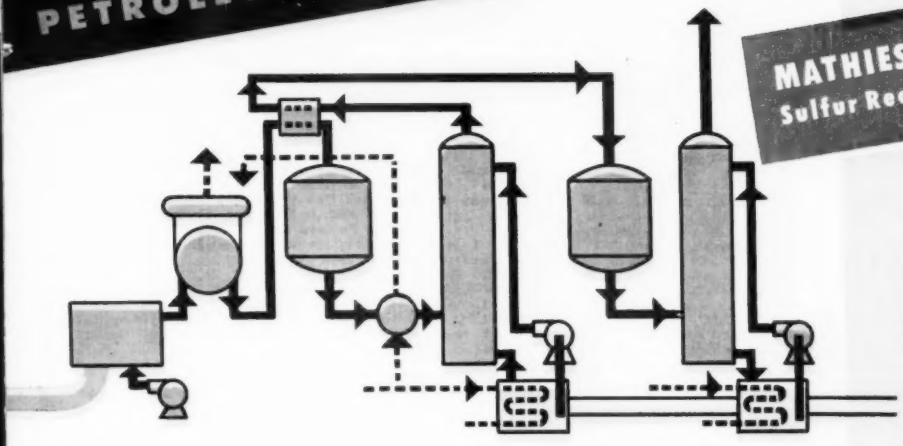
## PETROLEUM GASES

**MATHIESON-SASCO**
**Sulfur Recovery Process**



MATHIESON-SASCO PROCESS

**A gas stream containing hydrogen sulfide gas, such as the acid gas effluent from an amine plant, is partially burned with air—the heat being utilized for steam production. The combustion gases are passed through a catalyst where $SO_2$ and $H_2S$ react to form sulfur and water vapor. Elemental sulfur is then recovered from the gas stream by contacting with liquid sulfur in wash towers. The residue gas containing nitrogen, carbon dioxide and water vapor is vented to the atmosphere.**

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This proven Sasco Process for the profitable recovery of elemental sulfur from waste hydrogen sulfide gas is available under *one* contract, *one* responsibility through The Fluor Corporation, Ltd. As designers, engineers, and constructors for the petroleum industry since 1890, Fluor possesses the background, the know-how and the experience essential for the interpretation of Mathieson's Sasco Process into *your* particular sulfur recovery program. Prior to contract negotiations, Fluor will make economic studies covering every phase of proposed sulfur recovery installations—location of potential and ready markets, initial investment, operating costs, and profits to the investor.

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**Be sure with FLUOR**

**TABLE 3—PRINCIPAL DOMESTIC NATURAL-GAS PIPE-LINE PROJECTS UNDER WAY AND PLANNED (Continued)**

| Company— | Miles | Inch | Status | Contractor, location, and completion date |
|---|---|---|---|---|
| Northern Natural Gas Co. | 597 | 20-26 | Contracted | Ten loops from Texas to northern Iowa. |
| Northern Natural Gas Co. | 24 | 20-24 | Under way | R. H. Fulton & Co.—Kansas (near Liberal) |
| Northern Natural Gas Co. | 26 | 20 | Under way | R. H. Fulton & Co.—Garden City, Kans. |
| Northern Natural Gas Co. | 46 | 4-12 | Under way | R. H. Fulton & Co.—Garden City, Kans. |
| Northern Natural Gas Co. | 77 | 20-24 | Under way | Eastern Constr. Co., Inc.—Looping in Kansas, Nebr., Iowa. |
| Northwest Natural Gas Co. | 750 | | Planned | Washington, Oregon, and Idaho. |
| Oklahoma Natural Gas Co. | 22 | 10 | Under way | Trojan Const. Co., Inc., and Tulsa Pipe Coating Co.—Stillwater to Guthrie, Okla. |
| Pacific Gas & Electric Co. | 47 | 8 | Authorized | Salinas to Kilig City, Calif. |
| Pacific Gas & Electric Co. | 506 | 34 | Under way | Bechtel-Price-Conyes Corp.—Topock, Ariz., to Milpitas, Calif. |
| Pacific Lighting Corp. | 41 | 30 | Planned | Puente to March field, California, 1950. |
| Pacific Lighting Corp. | 23 | 30 | Planned | Inglewood to Encino, Calif. |
| Panhandle Eastern Pipe Line Co. | 356 | 26 | Authorized | Looping in Texas, Oklahoma, Kansas, Missouri, Illinois, Indiana, Ohio, and Michigan. |
| Peoples Gas Light & Coke Co. (Chicago Dist. Pipe Line Co.) | 42 | 24 | Authorized | Chicago city limits to Joliet, Ill., 12-50. |
| Piedmont Natural Gas Co. | 1,350 | 20 | Planned | Greenville, Miss., to Norfolk, Va. |
| Plains Natural Gas Co. | 78 | 4-24 | Authorized | Arey-Phillips Const. Co. and Tulsa Pipe Coating Co.—Hooker, Okla., area. |
| Potomac Gas Co. | 18 | 16 | Planned | Dranesville to Arlington, Va. |
| San Diego Gas & Electric Co. | 53 | 16 | Planned | San Diego County, California, 12-1-49 |
| San Diego Gas & Electric Co. (Southern Counties Gas Co.) | 85 | | Authorized | San Diego-Riverside-Moreno, Calif. |
| South Jersey Gas Co. | 77 | | Planned | Camden to Atlantic City, N. J. |
| Southern Counties Gas Co. of California | 23 | 20 | Under way | Utility and Van Valkenburg, Signal Pipe Line Const. and J. E. Young—Ventura north to Santa Barbara County line, Parida Creek, Santa Monica, and Malibu Beach, 1-6-50. |
| Southern Counties Gas Co. of California | 81 | 30 | Authorized | Looping, 1950. |
| Southern Natural Gas Co. | 314 | 18 | Planned | Extension. |
| Southern Natural Gas Co. | 171 | 16 | Planned | Extension. |
| Southern Natural Gas Co. | 118 | 13 | Planned | Extension. |
| Southern Natural Gas Co. | 138 | 20-22 | Planned | Chattanooga, Tenn., to Lexington, Miss. |
| Southern Natural Gas Co. | 375 | 24 | Planned | Gwinville, Miss., to Atlanta. |
| Southern Natural Gas Co. | 225 | 16 | Planned | Colfax, Ga., extension. |
| Southern Natural Gas Co. | 110 | 11 | Considered | Extension. |
| Southern Union Gas Co. | 78 | 8-10-14 | Planned | New Mexico loops and laterals. |
| Tennessee Gas Transmission Co. | 54 | 30 | Under way | Morrison Const.—Near White Bluff to near Joelton, Tenn., 1950. |
| Tennessee Gas Transmission Co. | 36 | 30 | Under way | Morrison Const.—Near Glasgow, Ky., to near Joelton, Tenn., 1950. |
| Tennessee Gas Transmission Co. | 18 | 30 | Under way | Anderson Bros.—Near Union City to Buckeye, Ky., 1950. |
| Tennessee Gas Transmission Co. | 28 | 12 | Under way | Massey Const.—Near El Campo to Traitor, Tex., 1950. |
| Tennessee Gas Transmission Co. | 65 | 16 | Planned | Ohio-Pittsburgh spur. |
| Tennessee Gas Transmission Co. | 790 | 20-26 | Planned | Burnaugh, Ky., to Boston, including 395-mi line to Buffalo. |
| Texas Eastern Transmission Corp. | 108 | 16 | Authorized | Provident City to Baytown, Tex. |
| Texas Eastern Transmission Corp. | 33 | 20 | Authorized | Hankamer to Beaumont, Tex. |
| Texas Eastern Transmission Corp. | 18 | 8 | Authorized | Silsbee and Hastings, Tex., area. |
| Texas Eastern Transmission Corp. | 1,400 | 26 | Planned | Texas to Pittsburgh loops. |
| Texas Gas Transmission Corp. | 103 | 20 | Under way | N. A. Saigh Co.—Carthage, Tex., to Sharon, La., 2-1-50. |
| Texas Gas Transmission Corp. | 79 | 26 | Under way | Williams Bros.—Branderburg, Ky., to Ohio River, 12-20-49. |
| Texas Gas Transmission Corp. | 33 | 12 | Authorized | Slaughters, Ky., to Evansville, Ind. |
| Texas Gas Transmission Corp.* | 723 | 26 | Under way | Lisbon, La., to Middletown, Ohio. |
| Texas Illinois Natural Gas Pipeline Co. | 1,400 | 20-26 | Planned | Houston to Joliet, Ill., and Greenville, Miss. |
| Transcontinental Pipe Line Co. | 23 | 30 | Under way | Oklahoma Contr.—Unnumbered section, Edgewater to Elizabeth, N. J. |
| Transcontinental Gas Pipe Line Corp. | 110 | 30 | Under way | Williams Bros.—Section 6, Newman, Ga., to Danielsville, Ga. |
| Transcontinental Gas Pipe Line Corp. | 86 | 30 | Contracted | Williams Bros.—Section 7, Danielsville, Ga., to Saluda River, S. C. |
| Transcontinental Gas Pipe Line Corp. | 102 | 30 | Contracted | R. H. Fulton—Section 8, Saluda River, S. C. to Catawba River, N. C. |
| Transcontinental Gas Pipe Line Corp. | 100 | 30 | Contracted | R. H. Fulton—Section 9, Catawba River, N. C. to N. Carolina-Virginia boundary. |
| Transcontinental Gas Pipe Line Corp. | 86 | 30 | Contracted | O. R. Smith Contr. Corp.—Section 10, No. Carolina-Va. boundary to James River, Va. |
| Transcontinental Gas Pipe Line Corp. | 110 | 30 | Contracted | O. R. Smith Contr. Corp.—Section 11, James River, Va., to Potomac River, Va. |
| Transcontinental Gas Pipe Line Corp. | 76 | 30 | Contracted | Associated Engrs. & Contr., Inc.—Section 12 Potomac River, Va., to Susquehanna River, Pa. |
| Transcontinental Gas Pipe Line Corp. | 90 | 30 | Contracted | Wunderlich & Griffis—Section 13, Susquehanna, Pa., to Delaware River. |
| Transcontinental Gas Pipe Line Corp. | 500 | 4 to 22 | Authorized | Gathering and lateral lines in metropolitan area and Texas and Louisiana, 10-50. |
| Transcontinental Gas Pipe Line Corp. | 502 | | Authorized | Unnumbered sections, Rio Grande Valley to Eunice, La. |
| Transcontinental Gas Pipe Line Corp. | 216 | 30 | Under way | Midwestern Constr., Inc.—Demopolis, Ala., to Newnan, Ga. |
| Transcontinental Gas Pipe Line Corp. | 1,840 | | Under way | Main line 70 mi., 20-in.; 460 mi., 26-in.; 1,210 mi., 30-in.; Rio Grande Valley, Tex., to New York City. |
| Transcontinental Gas Pipe Line Corp. | 380 | 8-16 | Planned | Laterals to gas field. |
| Transcontinental Gas Pipe Line Corp. | 61 | 30 | Contracted | Wunderlich & Griffis Const.—Delaware River to Hackensack River, N. J. |

**TABLE 3—PRINCIPAL DOMESTIC NATURAL-GAS PIPE-LINE PROJECTS UNDER WAY AND PLANNED (Continued)**

| Company— | Miles | Inch | Status | Contractor, location, and completion date |
|---|---|---|---|---|
| Trunkline Gas Supply Co. | 1,775 | 10-26 | Planned | Includes 740 mi., 26-in., Lake Charles, La., to Tuscola station of Panhandle Eastern Pipe Line Co., and 1,035 mi., 10-24-in., Lake Charles-McAllen, Tex., 10-1-52. |
| United Gas Pipe Line Co. | 90 | 16 | Planned | West Bay field to New Orleans. |
| United Gas Pipe Line Co. | 42 | 20 | Under way | O. C. Whitaker—Ruston to Red River, La. |
| United Natural Gas Co. | 39 | 12 | Authorized | Laterals, Elk County, Pennsylvania. |
| United Fuel Gas Co. | 32 | 20 | Authorized | Roane, Calhoun, and Wetzel counties, W. Va. |

*Texas Gas Transmission Corp. started laying 833-mile, 26-in. line in 1948. It will be completed in 1950. †Transcontinental Gas Pipe Line Co. is nearing completion of the first 600 miles of its 1,840-mile project from Mercedes, Tex., to New York. With the inclusion of 380 miles of laterals the entire project will total 2,200 miles.

**TABLE 4—COMPLETED DOMESTIC CRUDE-OIL PIPE-LINE PROJECTS**

| Company— | Miles | Inch | Contractor, location, and completion date |
|---|---|---|---|
| Atlantic Pipe Line Co. | 35 | 4-10 | McVean & Roberts Pipe Line Const.—Gathering system near Crane, Tex. |
| Atlantic Pipe Line Co. | 420 | 10 | Evans & James—Crane to Harbor Island, Tex., 9-10-49. |
| Buckeye Pipe Line Co. | 82 | 22 | Anderson Bros.—Lima to Bayshore (Toledo), Ohio, 7-1-49. |
| Buckeye Pipe Line Co. | 110 | 12 | Sheehan—Cygnet, Ohio, to Cleveland, 2-3-49. |
| Cities Service Pipe Line Co. | 14 | | Gathering lines in Kansas, Oklahoma, and Texas. |
| Continental Pipe Line Co. | 33 | 6 | Goldenstern & Stolper—Clay County and Archer County, Texas. |
| Cooperative Refinery Association | 48 | 6 | Cowley County, Kansas. |
| Interstate Oil Pipe Line Co. | 22 | 8-12 | O. C. Whitaker—Panther Creek Junction to Oklahoma City-Foster to Elmore City, Okla. |
| Interstate Oil Pipe Line Co. | 85 | 12 | C. B. Edmonds and Tulsa Pipe Coating—Elk Basin to Billings, Mont. |
| Kaw Pipe Line Co. | 23 | 8-10 | Rumsey Bros.—McClellan-Rempe, Bemis, Kans. |
| Lion Oil Co. | 11 | 2-3-4 | Ouachita to Smackover-El Dorado, Ark. |
| Magnolia Pipe Line Co. | 26 | 8 | C. L. Rogers—Howard County to Scurry County, Texas, 6-30-49. |
| Magnolia Pipe Line Co. | 13 | 8 | C. L. Rogers—Lea County, New Mexico, 9-13-49. |
| Magnolia Pipe Line Co. | 23 | 8 | C. L. Rogers—Pegasus field to Midland, Tex., 12-15-49. |
| Magnolia Pipe Line Co. | 70 | 3-4-6-8 | C. L. Rogers—Gathering system, Howard and Scurry counties, Tex. |
| Pasotex Pipe Line Co. | 26 | 4-6 | North Snyder, Tex., gathering lines. |
| Phillips Pipe Line Co. | 44 | 8 | Bill Morrison—Wichita, Kans., to Kansas City, Mo., loops, 6-25-49. |
| Phillips Pipe Line Co. | 289 | 12 | Morrison Bros.—Odessa to Borger, Tex., 5-49. |
| Plains Pipe Line Co. | 50 | 8 | Mush Creek field to Lance Creek field, Wyoming, 9-49. |
| Roosevelt Oil & Refining Co. (Simrall Div.) | 50 | 6 | Somerville Const.—Pentwater field, Oceana County, Michigan, south to Woodville in Newaygo County, Michigan. |
| Roosevelt Oil & Refining Co. | 40 | 4-6 | Welded Const. Co.—Pentwater to Woodville, Mich. |
| Shell Pipe Line Corp. | 41 | 14 | Latex Const.—Eunice, N. M. |
| Shell Pipe Line Corp. (Ozark)* | 435 | 22 | Midwestern, Smith Contracting, Anderson Bros.—Cushing, Okla., to Wood River, Ill., 7-49. |
| Shell Pipe Line Corp. | 32 | 12 | Smith Contr. Corp.—Wasson-Hobbs, 5-1-49. |
| Shell Pipe Line Corp. | 40 | 14 | Latex Const.—Hobbs-Jal, 9-1-49. |
| Shell Pipe Line Corp. | 157 | 10 | Trojan Const., Inc.—Elk City to Cushing, 12-31-49. |
| Shell Pipe Line Corp. | 22 | 3-4 | C. W. Sternberg—Provident City to Sheridan, 10-15-49. |
| Simrall Pipe Line Co. | 40 | 6 | Somerville Const. Co.—Pentwater to Woodville, Mich. |
| Sinclair Refining Co. | 382 | 8 | Company and outside contractors—Carrollton, Mo., to East Chicago Ind. Recondition crude line for products, 11-29-49. |
| Sinclair Refining Co. | 269 | 8 | Company and outside contractors—Redel, Kans., to Carrollton, Mo. Recondition crude line for products and construct pump stations, 11-12-49. |
| Sinclair Refining Co. | 90 | 2-8 | Bill Morrison—Wewoka to Pauls Valley, Okla., 4-25-49. |
| Sinclair Refining Co. | 20 | 3-8 | Bill Morrison—Madison, Kans., North, 5-25-49. |
| Skelly Oil Co. | 32 | 8 | Bishop & Lock—Burrton to El Dorado, Kans., 11-49. |
| Skelly Oil Co. | 12 | | Knupp Const.—El Dorado to Towanda, Kans., 6-49. |
| Socony-Vacuum Oil Co., Inc. (White Eagle Division) | 14 | 4 | Pacific Pipe Line & Engrs.—Gooseberry field, Park County, Wyoming, to Ohio Pipe Line Co.'s pump station, Hot Springs County, Wyoming, 9-15-49. |
| Standard Oil Co. of California | 10 | 10 | Pacific Pipe Line & Engrs.—Wilmington and Torrance, Calif. |
| Stanolind Pipe Line Co. | 105 | 10-16 | C. S. Foreman—Washington, Kans., to Freeman, Mo., 4-49. |
| Stanolind Pipe Line Co. | 62 | 12 | Sheehan—La Plata Mo., to Wood River, Ill., 4-49. |
| Stanolind Pipe Line Co. | 12 | 8 | Bills & Troth—Salt Creek, Wyo., to Taylor-Sussex, 4-49. |
| Stanolind Pipe Line Co. | 10 | 6 | I. C. Little—Post Oak area to Jacksboro Jct., 9-49. |
| Sun Pipe Line Co. | 61 | 4-10 | Seabreeze to Sun station, Texas. |
| Sun Pipe Line Co. | 60 | 4-6-10-8 | Sheppard-Geiger—Seabreeze field-Smiths Bluff, Stowell to Nederland, Tex., 9-1-49. |
| Sun Pipe Line Co. | 27 | 6 | J. J. Willis—Jameson (Texas), Bronte, Tex., 9-1-49. |
| Texas Empire Pipe Line Co. | 47 | 10 | Williams Bros.—Cushing to West Tulsa, Okla. |
| Texas Empire Pipe Line Co. | 182 | 18 | Anderson Bros., H. C. Price, Bechtel, Conyes Const. Co.—Patoka to Wilmington, Ill. |
| Texas-New Mexico Pipe Line Co. | 40 | 10 | Carl H. Dunn—Colorado City to Borden County, Texas, 1-50. |
| Texas-New Mexico Pipe Line Co. | 22 | 4-6 | Wright Const. Co.—Borden and Howard counties, Texas, 12-49. |
| Texas Pipe Line Co. | 131 | 12 | Smith Contr. Corp.—Chico to Corsicana, Tex., 10-49. |
| Texas Pipe Line Co. | 19 | 6-8 | Latex Const.—Manvel to Chocolate Bayou field, Texas, 1949. |
| Texas Pipe Line Co. | 55 | 22 | Sheehan—Wood River to Patoka, Ill. |
| Texas Pipe Line Co. | 35 | 8 | Latex Const.—Chico to Upham, Tex. |
| Texas Pipe Line Co.† (Basin System) | 173 | 24 | Smith Const.—Wichita Falls, Tex., to Cushing, Okla. |
| Texas Pipe Line Co. | 15 | 10-8-6 | Associated Pipe Line Contr., Inc.—Wharton County, Texas, Wharton to El Campo, 5-1-49. |
| Texas Pipe Line Co. | 55 | 22 | Sheehan—Wood River to Patoka, Ill. |
| Texas Pipe Line Co. | 35 | 8 | Latex Const.—Chico to Upham, Tex. |
| Texas Pipe Line Co. | 131 | 12 | Smith Contr.—Chico to Corsicana, Tex. |
| Valley Pipe Line Co. | 28 | 10 | Pacific Pipe Line & Engrs., Ltd.—Emidio to Elk Hills, Calif., 7-1-49. |
| Valley Pipe Line Co. | 53 | 10 | Pacific Pipe Line & Engrs., Ltd.—Elk Hills to Cottonwood, Calif. |
| Valley Pipe Line Co. | 72 | 10 | Kettleman Hills to Estero Bay, Calif. |

*Ozark Pipe Line System of Shell Pipe Line Corp. and Texas Pipe Line Co. Shell Pipe Line Corp. handled construction. †Basin (Jal-Cushing) 515-mile system of Texas Pipe Line Co., Shell Pipe Line Corp., Empire Pipeline Co., Sinclair Refining Co., Texas Pipe Line Co. handled construction.

### TABLE 5—COMPLETED DOMESTIC PRODUCTS PIPE LINES PROJECTS

| Company— | Miles | Inch | Contractor, location, and completion date |
|---|---|---|---|
| Alamo Refining Co. | 23 | 8 | Latex Const.—Sweeney to Freeport, Tex. |
| Buckeye Pipe Line Co. | 21 | 6 | H. L. Gentry Const.—Lawrenceville to Robinson, Ill., 9-15-49. |
| Buckeye Pipe Line Co. | 140 | 8 | H. L. Gentry Const.—Speedway, Ind., to Lima, Ohio, 12-8-49. |
| National Cooperative Refinery Association | 19 | 6 | M. E. White Const. Co.—Council Bluffs, Iowa, to Irvington, Neb., 1-49 |
| National Cooperative Refinery Association | 21 | 6 | Gene White—Council Bluff, Iowa, to Irvington, Neb., 7-49. |
| Plantation Pipe Line Co. | 12 | 8 | Latex Const.—Helena, Ark., to Birmingham, Ala., 8-49. |
| Salt Lake Pipe Line Co. | 168 | 8 | Smith Contr. Corp.—Salt Lake City to Burley, Ida., 12-15-49. |
| Salt Lake Pipe Line Co. | 152 | 8 | Grafe-Callahan Const. Co.-Oklahoma Contr. Co.—Burley to Boise Ida., 12-15-49. |
| Sinclair Refining Co. | 25 | 8 | John Meehan & Son, Ralph Hopple—Marcus Hook to Philadelphia |
| Socony-Vacuum Oil Co., Inc. (Eastern Pipe Line Div.) | 22 | 6 | Midwestern Constructors—Malvern-Binghamton to Reading, Pa., 4-49 |
| Socony-Vacuum Oil Co., Inc. | 147 | 8 | Midwestern Constructors—Malvern, Pa., to Binghamton, N. Y., 1-49 |
| Socony-Vacuum Oil Co., Inc. | 22 | 6 | Midwestern Constructors—Reading to Pottstown, Pa. |
| Standard Oil Co. (Ohio) | 38 | 8 | Britton Const. Co.—Toledo to Fostoria, 12-2-49. |
| Tuscarora Oil Co., Ltd. | 21 | 10 | Pipe Line Const. & Drlg. Co.—East Waterford, Pa., West, 6-1-49. |

### TABLE 6—COMPLETED DOMESTIC NATURAL-GAS PIPE-LINE PROJECTS

| | | | |
|---|---|---|---|
| Arkansas Louisiana Gas Co. | 91 | 20 | Latex Const.—Magnolia to Malvern, Ark., 12-15-49. |
| Arkansas Louisiana Gas Co. | 162 | 20 | Latex Const., Anderson Bros., Omaha Dredge & Dock—Waskom, Tex., to Perla, Ark., 12-49. |
| Atlantic Seaboard Corp. and Virginia Gas Trans. Co. | 268 | 26 | H. C. Price, Ray L. Smith—Clendenin, W. Va., to Rockville, Md. |
| Atomic Energy Commission (U. S. Govt.) | 95 | 12 | Morrison-Haddock Engr. Co.—Bloomfield to Los Alamos, N. M. |
| Cabot Carbon Co. | 26 | 10 | McVean & Roberts Pipe Line Const.—Odessa, Tex., 7-15-49. |
| California Co. | 26 | 8-6-3 | Latex Const.—Near Ruston, La. |
| Canadian River Gas Co. | 125 | 4-16 | Z. J. Graham—Moore, Hutchinson, and Potter counties, Texas. |
| Carthage Hydrocol, Inc. | 63 | 12-16 | H. B. Zachry—San Salvador area to Carthage synthetic gasoline plant at Brownsville, Tex. |
| Cities Service Gas Co. | 131 | 26 | R. H. Fulton—Newton to Ottawa, Kans., 9-15-49. |
| Cities Service Gas Co. | 26 | 4-6-12 | Knupp—Hugoton field, Kans., 9-1-49. |
| Colorado Interstate Gas Co. | 18 | 4-8-16 | Company crews—Colorado. |
| Colorado Interstate Gas Co. | 38 | 20 | Cheek Const. Co.—Denver, 12-31-49. |
| Colorado Interstate Gas Co. | 15 | 20 | R. H. Fulton—Lakin, Kans., 11-30-49. |
| Colorado Interstate Gas Co. | 39 | | Cheek Const. Co.—Hugoton field, 12-31-49. |
| Columbia Gas System, Inc. | 23 | 12 | Williams-Austin Co.—Menifee County to Clark County, Ky., 1949 |
| Columbia Gas System, Inc. | 18 | 20 | Mahoney Contr.—Seneca to Sandusky County, Ohio, 7-8-49. |
| Columbia Gas System, Inc. | 10 | 12 | Britton Contr.—Commonsburg to Bethel Borough, Pa., 9-10-49. |
| Columbia Gas System, Inc. | 24 | 12 | Williams Bros.—Port Jervis to Cochecton, N. Y., 8-25-49. |
| Columbia Gas System, Inc. | 38 | 20-16 | Mahoney Contr.—Fairfield County to Columbus, Ohio, 11-15-49. |
| Consolidated Gas Utilities Co. | 13 | 12 | LeBlase, Elk City field to Carpenter Compr. Sta., Oklahoma, 11-3-49 |
| Continental Oil Co. | 35 | 2-20 | George Tucker—Big Lake, Tex., 9-1-49. |
| Dow Chemical Co. | 15 | 4 | Latex Const.—Near Bay City, Tex. |
| East Tennessee Natural Gas Co. | 172 | 22 | Oman, Fulton, Brodie—Greenbrier to Oak Ridge, Tenn., 12-49. |
| El Paso Natural Gas Co. | 105 | 24 | Company crews—Upton County, Texas, to Jal, N. M., at east end of 26-in. line to California, 7-49. |
| El Paso Natural Gas Co. | 150 | 30 | Company crews—Upton County, Texas, 12-49. |
| Gulf Oil Corp. | 40 | 3-24 | Younger Const.—Eunice, N. M., gathering system and gasoline plant |
| Home Gas Co. | 20 | 6-10 | Britton Const.—Dundee storage field, New York, 6-1-49. |
| Home Gas Co. | 70 | | Orange, Sullivan-Rockland counties, New York-Cattaragus County, New York, area. |
| Hope Natural Gas Co. | 13 | 14 | Pipe Line Const. & Drlg. Co.—Hastings, W. Va., 7-1-49. |
| Hope Natural Gas Co. | 32 | 16 | Pipe Line Const. & Drlg. Co.—Hastings to Clarksburg, W. Va., 8-1-49. |
| Houston Pipe Line Co. | 67 | | Latex Const.—Village Mill, Tex., area. |
| Interstate Natural Gas Co., Inc. | 28 | 16-20-22 | Latex Const.—Krotz Springs to Baton Rouge, La., 11-49. |
| Interstate Natural Gas Co., Inc. | 15 | 6 | Carrugh Pipe Line Corp.—Laterals in Holly Ridge and Sicily Island, La. |
| Kansas Light & Power Co. | 146 | 20-22 | M. J. White—Ulysses-Pratt, Kans. |
| Kansas-Nebraska Natural Gas Co., Inc. | 21 | 12 | Cheek Const.—Scott City, Kans., to South, 8-49. |
| Kansas-Nebraska Natural Gas Co., Inc. | 44 | 12 | Rumsey Bros.—Wakeeney, Kans., looping, 9-49. |
| Kansas-Nebraska Natural Gas Co., Inc. | 19 | 12 | Rumsey Bros.—Alma, Neb., and Holdredge, Neb., gas enlargement, 9-49. |
| Kansas-Nebraska Natural Gas Co., Inc. | 87 | 8-6-4-3 | Rumsey Bros.—Elm Creek, Loup City, Broken Bow, Neb., gas extension, 11-49. |
| Kansas-Nebraska Natural Gas Co., Inc. | 40 | 6 | Company crews—Misc. Nebraska locations, gas extensions, 11-49. |
| Lone Star Gas Co. | 215 | 3-4-20 | Company crews—Pottsville field to Kerrville and Marble Falls, Tex., 12-7-49. |
| Lone Star Gas Co. | 24 | 20 | Company crews—Dallas to Irvington area, Texas. |
| Lone Star Gas Co. | 69 | 20 | Eastern Const. Co.—Opelika to Dallas, Tex., 9-1-49. |
| Lone Star Gas Co. | 25 | 20 | Company crews—Groesbeck to Riesel, Tex., 8-1-49. |
| Manufacturers Light & Heat Co. | 86 | 6-12 | Williams Bros.—Port Jervis-Nyack, N. Y. |
| Manufacturers Light & Heat Co. | 30 | 6-12 | Britton Const.—Majorsville, Pa., area, 6-1-49. |
| McCarty Oil & Gas Co. | 100 | 12-13-16-20 | Anderson Bros.—Jackson Pasture to Orange, Tex. |
| Michigan Consolidated Gas Co. | 15 | 20 | Somerville Const.—Austin field to Goodwell field, Michigan |
| Michigan Consolidated Gas Co. | 23 | 12 | Somerville Const.—Milford to Ann Arbor, Mich. |
| Michigan Gas Storage Co. | 113 | 20 | Mahoney Contr. Co.—Laying 61-mi. Freedonia-Laingsburg-Lansing Mich. |
| Michigan-Wisconsin Pipe Line Co. | 796 | 24 | J. R. Horrigan—Hansford County, Texas, to Sandwich, Ill., 10-49. |
| Michigan-Wisconsin Pipe Line Co. | 256 | 22 | J. R. Horrigan—Sandwich, Ill., to Austin field, 10-49. |
| Michigan-Wisconsin Pipe Line Co. | 105 | 22 | J. R. Horrigan—Sandwich, Ill., to Milwaukee, Wis., 8-49. |
| Michigan-Wisconsin Pipe Line Co. | 58 | 6 | Rumsey Bros. Pipe Line Const. Co.—Iowa laterals to Keokuk Burlington, Fort Madison and Mount Pleasant, 11-49. |
| Michigan-Wisconsin Pipe Line Co. | 96 | 10 | Anderson Bros.—Wisconsin laterals to Madison, Janesville, Beloit Stoughton, and Racine, 11-49. |
| Minneapolis Gas Light Co. | 20 | 12-16-20 | Williams Bros.—Minneapolis. |
| Mississippi River Fuel Corp. | 224 | 24 | R. B. Potashnick—Looping from Perryville, 11-15-49. |
| Montana-Dakota Utilities Co. | 60 | 3-12 | Field lines for 1949 construction. |
| Montana Power Co. | 83 | 12 | Location and completion—Butte to Bozeman, Mont., 8-50. |
| Mountain Fuel Supply Co. | 33 | 20 | Enoch Smith Sons Co.—Coalville to Salt Lake City, Utah, 10-49. |
| Natural Gas Pipeline Co. of America | 27 | 26 | Midwestern Const.—Main-line looping, Iowa and Illinois. |
| New York State Natural Gas Corp. | 46 | 16 | Williams-Austin Co.—Rasselas to Genessee, Pa., 6-19-49. |

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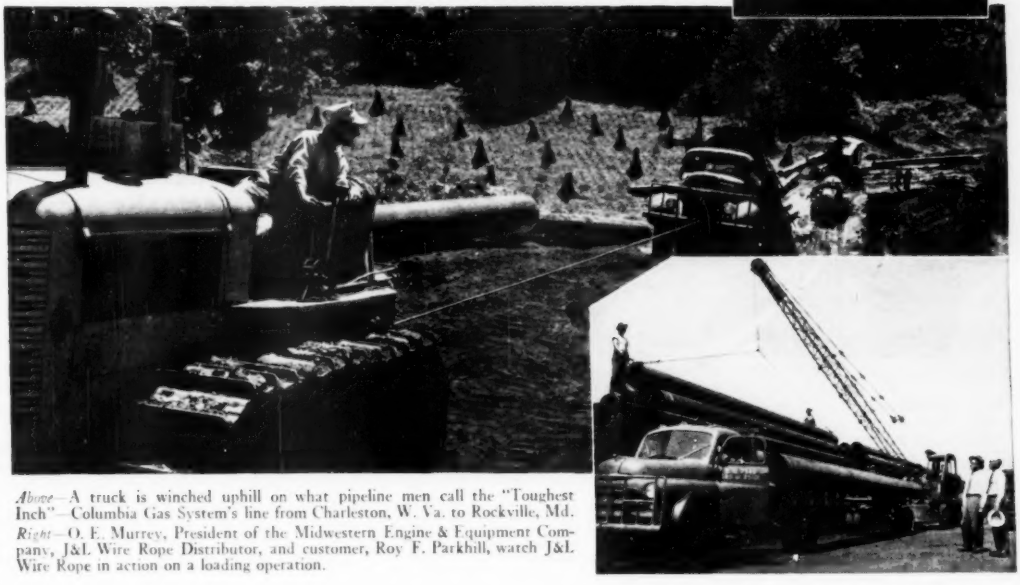

*Above*—A truck is winched uphill on what pipeline men call the "Toughest Inch"—Columbia Gas System's line from Charleston, W. Va. to Rockville, Md. *Right*—O. E. Murrey, President of the Midwestern Engine & Equipment Company, J&L Wire Rope Distributor, and customer, Roy F. Parkhill, watch J&L Wire Rope in action on a loading operation.

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**A.** Definitely not. Two rollers give vertical stability to the kelly—prevent it from gyrating and wobbling—hold it steady at *all* table speeds and under *all* drilling conditions, rough or smooth.

One roller on each face would not give this vertical stability . . . would permit the kelly to wobble and gyrate over a wide arc—which, in turn, would not only reduce drilling speed and efficiency, but would also cause severe strains on table bearings, swivel bearings and pipe connections.

**Another important point**—one roller for each face would necessitate the rollers being quite large in order to prevent "corrugating" the kelly. Large rollers mean high inertia—are slow to start, slow to stop and prevent instant response to kelly feed. But by using two rollers against each face, ample driving surface is secured with rollers that are compact, quick-turning, quick-stopping. Result—*instant response to the most delicate bit feed!*

One roller permits wobble

Two rollers maintain alignment

Bronze bushing prevents steel-to-steel contact

**Q** Why do you use a bronze bushing between each roller and pin? Wouldn't it be easier to simply use larger pins and eliminate the bronze bushings?

**A.** It would be easier, yes . . . but not good engineering. The bronze bushings serve a very important function by preventing steel-to-steel contact between rollers and pins. As most engineers know, steel against bronze gives a much better bearing surface than steel-on-steel. It not only resists galling under higher loads, but also carries more efficiently the heavy driving pressures set up between the pins and rollers.

And speaking of the pins, here's another valuable design feature . . . Because there is no pressure (therefore no wear) on the back side of the pins, these have been designed so that they can be easily reversed to bring the unworn back side to the front for additional life after the front sides are worn. Cuts maintenance to a minimum and insures peak performance *longer* without replacements.

**Q** Do you need a separate Baash-Ross Roller Bushing for each size kelly?

**A.** No. The same bushing can be quickly changed from one kelly size to another by merely lifting out the roller assemblies—which come in sets—and replacing them with a new set of the desired size. It's simple, fool-proof, *quick* . . . and cuts kelly bushing investment to a minimum. For example, the same Baash-Ross Bushing will fit *all* square kelly sizes from 3" to 6" by simply changing roller assemblies. Or, when using Hex kellys, the same Roller Bushing will fit all Hex sizes from 3½" to 7" by changing only the assemblies.

**Q** It's a well-known fact that close bushing fit is important when using Hex kellys. Can you maintain close fit with the Baash-Ross Roller Bushing for Hex kellys?

**A.** Absolutely! In fact, the Baash-Ross Hex Roller Kelly Bushing is designed so that all you do to adjust the fit is lift out the roller assemblies and remove one or more shims below each assembly. Working diameter is reduced exactly 1/32" for each shim removed, so it's easy to make accurate adjustment without complicated operations.

*Get the complete story on Baash-Ross Roller Kelly Bushing advantages before you invest in any bushing. Your near-by Baash-Ross representative will be glad to supply further details on this modern bushing—or write direct for full information.*

**TABLE 6—COMPLETED DOMESTIC NATURAL-GAS PIPE-LINE PROJECTS (Continued)**

| Company— | Miles | Inch | Contractor, location, and completion date |
|---|---|---|---|
| Northern Natural Gas Co. | 24 | 20-24 | R. H. Fulton—Lateral from Sublette Sta., Kans., to Plains Natural Gas Co. system, 1-30-50. |
| Northern Natural Gas Co. | 78 | 20-24 | Eastern Const.—Loops near Oakland and Clifton, Iowa, and Palmyra and Plattsmouth, Neb. |
| Northern Natural Gas Co. | 59 | 24 | G. G. Griffis Const.—Near Ogden, Iowa, and Albert Lea and Farmington, Minn. |
| Northern Natural Gas Co. | 21 | 24 | R. H. Fulton & Co.—West of Garden City, Kans., 10-49. |
| Northern Natural Gas Co. | 46 | 4-6-8 | Knupp Const.—Hugoton field, Kansas, 10-49. |
| Northern Natural Gas Co. | 41 | 20 | R. H. Fulton & Co.—Southwest Garden City, Kans., 12-49. |
| Ohio Fuel Gas Co. | 40 | 18 | H. L. Gentry—South Point to Jackson, Ohio. |
| Ohio Fuel Gas Co. | 80 | 8 | H. L. Gentry—Harrod to Galion, Ohio. |
| Ohio Fuel Gas Co. | 38 | 16-20 | Mahoney Contr. Co.—Sugar Grove and New Albany, Ohio, 11-15-49. |
| Ohio Fuel Gas Co. | 88 | 20 | Midwestern, Anderson Bros.—Crawford-Lick station, Ohio; Lick-South Point stations, Ohio. |
| Ohio Fuel Gas Co. | 48 | 20 | Mahoney—Mount Gilead to Treat station; Pavonia station to Washington, Ohio. |
| Ohio Fuel Gas Co. | 27 | 20 | Mahoney Contr.—Columbus to Carroll, Ohio, 8-49. |
| Ohio Fuel Gas Co. | 18 | 20 | Mahoney Contr.—Republic to Fremont, Ohio, 7-49. |
| Pacific Lighting Corp. | 17 | 20 | Signal Pipe Line Const. Co.—Encino to Thousand Oaks, Calif., 11-49. |
| Pacific Lighting Corp. | 15 | 30 | Alex Robertson Co.—Rivera to Inglewood, Calif., 11-49. |
| Pacific Lighting Corp. | 35 | 16 | J. E. Young Co.—Moreno to Rainbow, Calif., 12-49. |
| Panhandle Eastern Pipe Line Co. | 198 | 26 | R. H. Fulton & Co.-R. B. Potashnick & Co.-Midwestern Constructors—Okla., Kans., Mo., and Ill. |
| Panhandle Eastern Pipe Line Co. | 85 | 24-26 | R. H. Fulton & Co.—Loops near Liberal, Kans. |
| Panhandle Eastern Pipe Line Co. | 50 | 26 | Anderson Bros.—Illinois-Indiana and Missouri, 10-15-49. |
| Panhandle Eastern Pipe Line Co. | 23 | 26 | Anderson Bros.—Missouri looping, 10-49. |
| Panhandle Eastern Pipe Line Co. | 15 | 26 | C. S. Foreman & Co.—Missouri looping, 10-49. |
| Panhandle Eastern Pipe Line Co. | 10 | 26 | R. H. Fulton & Co.—Oklahoma looping, 10-49. |
| Peoples Natural Gas Co. | 38 | 14 | Williams-Austin Co.—N.E. Rockwood, Pa., to N.W. of Johnstown, Pa., 10-1-49. |
| Phillips Petroleum Co. | 305 | 3-24 | Vaughn & Taylor Const. Co.—Gathering system, Sherman and Hansford counties, Texas, 9-11-49. |
| Rocky Mountain Gas Co. | 55 | 8 | Dawson & Corbett Pipe Line Welding Co.—Wyoming. |
| Shamrock Oil & Gas Corp. | 30 | | Vaughn & Taylor, Moore County, Texas. |
| Southern California Gas Co. | 13 | 30 | Alex Robertson—Rivera to Pasadena, Calif., 12-1-49. |
| Southern Counties Gas Co. | 88 | 30 | Whitewater to Rosemead, Calif., 12-1-49. |
| Southern Counties Gas Co. | 17 | 30 | Rivera to Southwest Los Angeles, Calif., 12-1-49. |
| Southern Counties Gas Co. of California | 35 | 16 | J. E. Young—Moreno to San Diego County line, 11-20-49. |
| Southern Counties Gas Co. of California | 22 | 30 | Alex Robertson—Rivera-Crenshaw loop to Rosemead to Puente, 9-15 |
| Southern Counties Gas Co. of California | 18 | 6-8-12 | Pacific Pipeline Const.—Pt. Mugu Naval Station, and Puente-West Covina, Baldwin Park, 2-15, 11-4-49. |
| Southern Natural Gas Co. | 61 | 24 | Latex Const.—Eastern Alabama loop. |
| Southern Natural Gas Co. | 32 | 13 | Ford, Bacon & Davis Const.—Branch line loop in Alabama, 11-20-49. |
| Southern Pipe Line Co. | 18 | 6-7-8 | Sheppard & Geiger Const.—Edroy to Saxet, Tex. |
| Southern Union Gas Co. | 32 | 10-12-14 | R. H. Fulton, H. B. Zachry, J. W. Walton—Albuquerque, Santa Fe, Roswell, N. M., loops. |
| Stanolind Oil & Gas Co. | 63 | 2-26 | Deaton & Sons, Inc.—Gathering system, Fullerton field, Texas |
| Stanolind Oil & Gas Co. | 19 | 4-6 | Deaton & Sons, Inc.—Fullerton field to Eunice, N. M., 9-30-49. |
| Stanolind Oil & Gas Co. | 132 | 4-30 | Deaton & Sons, Inc.—Gathering system in Hugoton field, Kansas |
| Stanolind Oil & Gas Co. | 130 | 2-30 | Deaton & Sons, Inc.—Gathering system in Levelland field, Texas |
| Tennessee Gas Transmission Co. | 121 | 6-8-12 | Company crews, Sheppard & Geiger, Shanks & Eustace, Duke Bros. and Massey—Gathering lines, Texas and Louisiana. |
| Tennessee Gas Transmission Co. | 46 | 24 | H. C. Price—Cranell-Victoria, Tex. |
| Tennessee Gas Transmission Co. | 91 | 30 | H. C. Price—Loops, Inez-Victoria, 16.6 mi.; Drew, Miss., to Miss. River, 49.2 mi.; Selmer, Tenn., area, 25.4 mi. |
| Tennessee Gas Transmission Co. | 81 | 30 | Morrison Const.—Loops, Sabine River area, 28.5 mi.; Louetta, Tex. |
| Tennessee Gas Transmission Co. | 59 | 26-30 | Anderson Bros.—Union City, Ky., area, 14.9 mi.; Clay City, Ky., 41.1 mi. |
| Tennessee Gas Transmission Co. | 95 | 30 | Company spread—Monroe, La., 57 mi.; Holly Springs, Miss., area, 37.8 mi. |
| Tennessee Gas Transmission Co. | 11 | 8-12 | Company crews—Heyser, Tex., and Logansport, La., lines. |
| Tennessee Gas Transmission Co. | 395 | 26 | Load, Ky., to Buffalo, N. Y. |
| Tennessee Gas Transmission Co. | 32 | 24 | South Texas. |
| Tennessee Gas Transmission Co. | 52 | 26 | Eastern Kentucky. |
| Tennessee Gas Transmission Co. | 707 | 30 | South Texas to eastern Kentucky. |
| Tennessee Gas Transmission Co. | 120 | 16 | Louisiana. |
| Tennessee Gas Transmission Co. | 100 | 12 | Texas and Louisiana. |
| Tennessee Gas Transmission Co. | 43 | Less than 12 | Texas. |
| Tennessee Gas Transmission Co. | 44 | 16 | Pennsylvania laterals. |
| Texas Eastern Transmission Corp. | 122 | 26 | Associated Pipe Line Contr.—Lebanon to Somerset, Ohio, 11-49. |
| Texas Eastern Transmission Corp. | 56 | 26 | Williams Bros.—Roseville to Woodfield, Ohio, 11-49. |
| Texas Eastern Transmission Corp. | 37 | 30 | Associated Pipe Line Contr.—Castor to Sharon, La., 11-49. |
| Texas Eastern Transmission Corp. | 70 | 26 | Associated Pipe Line Contr.—Somerset to Washington, C.H., Ohio. |
| Texas Gas Transmission Corp. | 544 | 26 | Sharon, La., to Brandenburg, Ky., 12-49. |
| Texas Gas Transmission Corp. | 79 | 26 | Midwestern Constr.—Ohio River to Middletown, Ohio. |
| Transcontinental Gas Pipe Line Corp. | 66 | 30 | Morrison Const.—Section 1, Eunice, La., to Mississippi River. |
| Transcontinental Gas Pipe Line Corp. | 112 | 30 | Morrison Const.—Section 2, Mississippi River to Bassfield, Miss. |
| Transcontinental Gas Pipe Line Corp. | 112 | 30 | Wunderlich-Griffis Const. Co.—Section 3, Bassfield, Miss., to Tombigbee River, Ala. |
| Transcontinental Gas Pipe Line Corp. | 103 | 30 | Midwestern Constr.—Section 4, Tombigbee River, Ala., to Cross River, Ala. |
| Transcontinental Gas Pipe Line Corp. | 103 | 30 | Midwestern Contr.—Section 5, Coosa, Ala., to Newman, Ga. |
| United Gas Pipe Line Co. | 80 | 2-4-6 | L. E. Farley Const. Co.—Laterals, North Mississippi. |
| United Gas Pipe Line Co. | 90 | 20 | O. C. Whitaker Co.—Baxterville, Miss., to Mobile, Ala. |
| United Gas Pipe Line Co. | 40 | 20 | O. C. Whitaker Co.—Ruston to Monroe, La. |
| United Gas Pipe Line Co. | 20 | 20 | O. C. Whitaker Co.—Baxterville field. |
| United Natural Gas Co. | 14 | 12 | Northeastern Const.—Pew comp. sta. in Clarion County, Pennsylvania, to Eldred comp. sta., Jefferson County, Pennsylvania. |
| Washington Light Co. | 30 | 6-12 | Britton Contr.—Washington, Pa. |
| West Texas Gas Co. | 14 | 8 | Western Const. Co.—Goldsmith to Odessa, Tex., 9-15-49. |
| West Texas Gas Co. | 13 | 6 | Brodie Const. Co.—Near Brownfield, Tex., 3-49. |
| West Texas Gas Co. | 13 | 5 | M. L. Moore Const.—Near Oilton, Tex., 5-49. |

### TABLE 7—PRINCIPAL FOREIGN CRUDE-OIL PIPE-LINE PROJECTS PLANNED, AUTHORIZED, UNDER WAY

| Company— | Miles | Inch | Status | Contractor, location, and completion date |
|---|---|---|---|---|
| Cia. de Petroleo Ganso Azul, Ltda. | 48 | 4 | Planned | Ganso Azul field to Pucallpa on Upper Ucayali River, Peru. |
| Direccion General de Yacimientos Petroliferos Fiscales | 25 | | Under way | Tupungato-Lujan de Cuyo, Argentina. |
| Direccion General de Yacimientos Petroliferos Fiscales | 409 | | Under way | Plaza Huincul-Bahia Blanca, Argentina. |
| Direccion General de Yacimientos Petroliferos Fiscales | 10 | | Under way | Lujan de Cuyo-Agrelo. |
| Interprovincial Pipe Line Co.‡ | 1,150 | 16-18-20 | Planned | Edmonton, Alta., to Superior, Wis., contracted; Canadian-Bechtel, Ltd., and Fred Mannix Co., Edmonton-Regina, 450 mi., 20-in.; Williams Brothers Corp., Regina-Gretna, Man., 340 mi., 16-in.; Anderson Brothers Corp., Minnesota and Wisconsin, 360 mi., 18-in., 10-50. |
| Iraq Petroleum Co., Ltd.* | 620 | 16 | Under way | Kirkuk to Haifa, Palestine. |
| Iraq Petroleum Co., Ltd. | 556 | 30 | Under way | Bechtel-Kirkuk, Iraq, to Banias, Lakatia, 1952. |
| Middle East Pipelines, Ltd. | 800 | 34-36 | Planned | Iran-Levantine Port. |
| Montreal Pipe Line Co., Ltd.‡ | 68 | 18 | Planned | Fred Mannix & Co., Ltd., loop in Quebec, 1950. |
| Petroleos Mexicanos | 145 | $12^3/_4$ | Considered | Reynosa to Monterrey, Mexico. |
| Petroleos Mexicanos | 280 | $12^3/_4$ | Authorized | Poza Rica to Salamanca, Mexico. |
| Santos Jundiai Railroad | 30 | 18 | Planned | Santos to Sao Paulo, Brazil. |
| Trans-Arabian Pipe Line Co. | 1,067 | 30-31 | Under way | International Bechtel, Inc.-Williams Brothers Corp.-Graver Tank & Mfg. Co.-Chicago Bridge & Iron Co.—Abqaiq, Saudi Arabia, to Sidon, Lebanon. |

*Construction shut down. ‡Section of the Interprovincial project in the United States will be built by Lakehead Pipe Line Co. ‡Section of Portland-Montreal project in the United States will be built by Portland Pipe Line Corp.

### TABLE 8—PRINCIPAL FOREIGN PRODUCTS PIPE-LINE PROJECTS PLANNED, AUTHORIZED, UNDER WAY

| | | | | |
|---|---|---|---|---|
| Cia. des Pipe Lines Petroliers Francias* | 150 | 10 | Planned | Le Havre to Paris, France. |
| Colombian Ministry of Petroleum | 90 | 6 | Planned | Puerto Berrio-La Dorado, Colombia. |
| Colombian Ministry of Petroleum | 103 | 4 | Planned | Puerto Berrio-Medellin, Colombia. |
| Colombian Ministry of Petroleum | 75 | 4 | Planned | Buena Ventura-Cali, Colombia. |
| Creole Petroleum Corp. | 10 | 8 | Under way | Catia de la Mar to Nueva Caracas, Venezuela. |
| Northern Pipe Line, Ltd. | 400 | 10 | Under way | Montreal, Que., to Toronto, Ont. |
| Petroleos Mexicanos | 160 | $10^3/_4$ | Under way | Minatitlan to Salina Cruz, Mexico. |
| Santos Jundiai Railroad | 40 | 10 | Planned | Santos to Sao Paulo to Compinas, Brazil. |
| Svenska Enterprenad Atkiebolget | 220 | | Planned | Uddevalla to Vasteras, Sweden. |

*Deferred.

### TABLE 9—FOREIGN NATURAL-GAS PIPE-LINE PROJECTS PLANNED, AUTHORIZED, UNDER WAY

| | | | | |
|---|---|---|---|---|
| Azienda Generale Italiana Petroli | | | Under way | Lodi-Milan, Italy. |
| Azienda Generale Italiana Petroli | | | Under way | Lodi-Turin, Italy. |
| Azienda Generale Italiana Petroli | | | Under way | Lodi-Genoa, Italy. |
| Direccion General del Gas del Estado | 310 | | Planned | Plaza Huincul to Neuquen, Argentina, to the vicinity of General Conesa, Argentina. |
| Direccion General del Gas del Estado | 62 | | Under way | Comodoro Rivadavia-Caleta Olivia, Argentina. |
| Northwest Natural Gas Co. | 950 | 24 | Planned | Alberta fields to Vancouver, B. C., Seattle, Wash., and Portland, Ore. |
| Petroleos Mexicanos | 205 | 16 | Considered | Monterrey to Torreon, Mexico. |
| Petroleos Mexicanos | 260 | 20 | Considered | Monterrey-Tampico-Poza Rica, Mexico. |
| Petroleos Mexicanos, Mexican Gas Co., and Industrial Gas Co. | 600 | | Planned | Reynosa, Tamaulipas, to Mexico City, D. F., Mexico. |
| Westcoast Transmission Co., Ltd. | 1,400 | 30 | Planned | North Alberta, Vancouver, B. C., and northern California. |
| Western Pipe Lines | 710 | 22-24 | Planned | Alberta fields, Saskatoon, Alta., to Winnipeg, Man., Canada. |

### TABLE 10—PRINCIPAL FOREIGN CRUDE-OIL PIPE-LINE PROJECTS COMPLETED

| Company— | Miles | Inch | Contractor, location, and completion date |
|---|---|---|---|
| Anglo-Iranian Oil Co., Ltd. | 56 | 20-22 | Agha Jari to Mashur, Iran. |
| Corporacion de Fomento de Chile | 45 | 8 | Cerro Manantiales (Springhill) to Caleta Clarencia Techint Pipe Line Div., Tecnica International, S.A. (on Bahia Gente Grande). |
| Direccion General de Yacimientos Petroliferos Fiscales | 10 | | Tupungato-Anchoris, Argentina. |
| Kuwait Oil Co. (Gulf and Anglo-Iranian) | 600 | 4-30 | Bechtel-Kuwait, Arabia. |
| Imperial Oil, Ltd. | 85 | 4-8 | Sparling-Davis Co., Ltd.—Redwater and Deron, Alta., Canada. |
| Iraq Petroleum Co., Ltd. | 532 | 16 | Kirkuk to Tripoli, Lebanon. |
| Iraq Petroleum Co., Ltd. [Petroleum Dev. (Qatar), Ltd.] | 73 | 13-14 | Dukhan to Umm Said. |
| Pancoastal Oil Co., C. A. | 24 | | Jose Ruiz-3—Concession to Tucupido, Venezuela. |
| Yacimientos Petroliferos Fiscales de Bolivianos | 255 | 6 | Williams Bros. Co.—Camiri-Cochabamba-Sucre, Bolivia. |

### TABLE 11—FOREIGN PRODUCTS PIPE-LINE PROJECT COMPLETED

| | | | |
|---|---|---|---|
| United Kingdom Government | 150 | 6 | Shell Petroleum Co. supervision—Mtwara, near Lindi, to Ground Nuts area, Tanganyika, Africa. |

### TABLE 12—FOREIGN NATURAL-GAS PIPE-LINE PROJECTS COMPLETED

| | | | |
|---|---|---|---|
| Azienda Generale Italiana Petroli | | 10 | Po Delta-Venice, Italy. |
| Direccion General del Gas del Estado | 37 | | La Plata-Buenos Aires, Argentina. |
| Direccion General del Gas del Estado | 37 | | Tupungato-Mendoza, Argentina. |
| Direccion General del Gas del Estado | 62 | | Internos de los Yacimientos, Argentina. |
| Direccion General del Gas del Estado | 1,000 | 10 | Tecnica-Industrial and government crews—Comodoro Rivadavia-Buenos Aires, Argentina. |
| Petroleos Mexicanos | 150 | 20 | Williams Bros. Co.—Poza Rica to Mexico City. |
| Regie Autonome des Petroles | 114 | 8 | Toulouse-Bordeaux, France. |

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REVIEW AND FORECAST NUMBER

# 19,000 Wells Scheduled for Artificial Lift During 1950

**by Kenneth B. Barnes**

FOR the year 1950 The Oil and Gas Journal estimates that 19,063 wells will be put on artificial lift. This estimate is believed to be accurate to within a very small percentage. The data on which this estimate is based were obtained by direct inquiries, company by company, to representative oil concerns operating in every oil-producing state in the country.

The survey on artificial-lift installations includes all classifications, such as sucker-rod pumping, hydraulic pumping, gas lift, plunger lift, electrical submersible-pump installations, etc.

This 1950 survey indicates that some 650 more wells will be placed on artificial lift than were last year. The 1950 list, as mentioned, totals 19,063. The 1949 total was 18,410 wells to go on artificial lift.

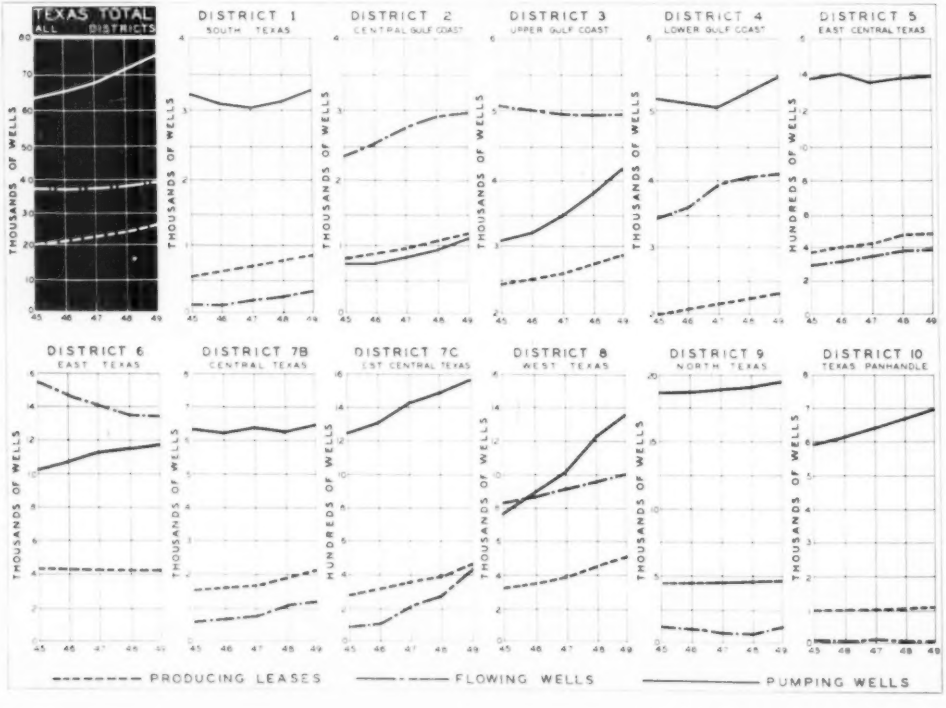
The biggest increase for 1950 artificial lift wells will come in Texas. The Journal's new survey shows some 8,112 wells scheduled for lift-type production this year. Last year's figure was 6,718, so the estimated increase for 1950 in Texas totals 1,394 installations.

After Texas, with its estimated 8,112 wells scheduled for 1950 lift-type production, come Oklahoma with 1,652, Kansas with 1,448, California with 1,360, Illinois with 1,348, and Louisiana with 1,218.

The Journal's 1950 artificial-lift survey indicates that for every oil well to be completed in the United States during the year there will be about 1,785 drilling ventures of all kinds, including wildcats, development wells, injection wells, gas producers, and dry holes. Another significant ratio is that of the wells to be

ARTIFICIAL LIFT SURVEY, 1950

| | Estimates for 1950 | |
|---|---|---|
| | To be drilled | Artificial lift |
| Arkansas | 276 | 175 |
| California | 1,985 | 1,360 |
| Colorado | 74 | 42 |
| Illinois | 2,517 | 1,348 |
| Indiana | 1,275 | 574 |
| Kansas | 3,043 | 1,448 |
| Kentucky | 1,376 | 480 |
| Louisiana | 2,617 | 1,218 |
| Michigan | 780 | 316 |
| Mississippi | 300 | 127 |
| Montana | 217 | 104 |
| New Mexico | 581 | 371 |
| New York | 727 | 371 |
| Ohio | 1,106 | 354 |
| Oklahoma | 3,850 | 1,652 |
| Pennsylvania | 1,555 | 713 |
| Texas | 13,997 | 8,112 |
| West Virginia | 521 | 89 |
| Wyoming | 511 | 199 |
| Others | 106 | 10 |
| Total | 37,414 | 19,063 |



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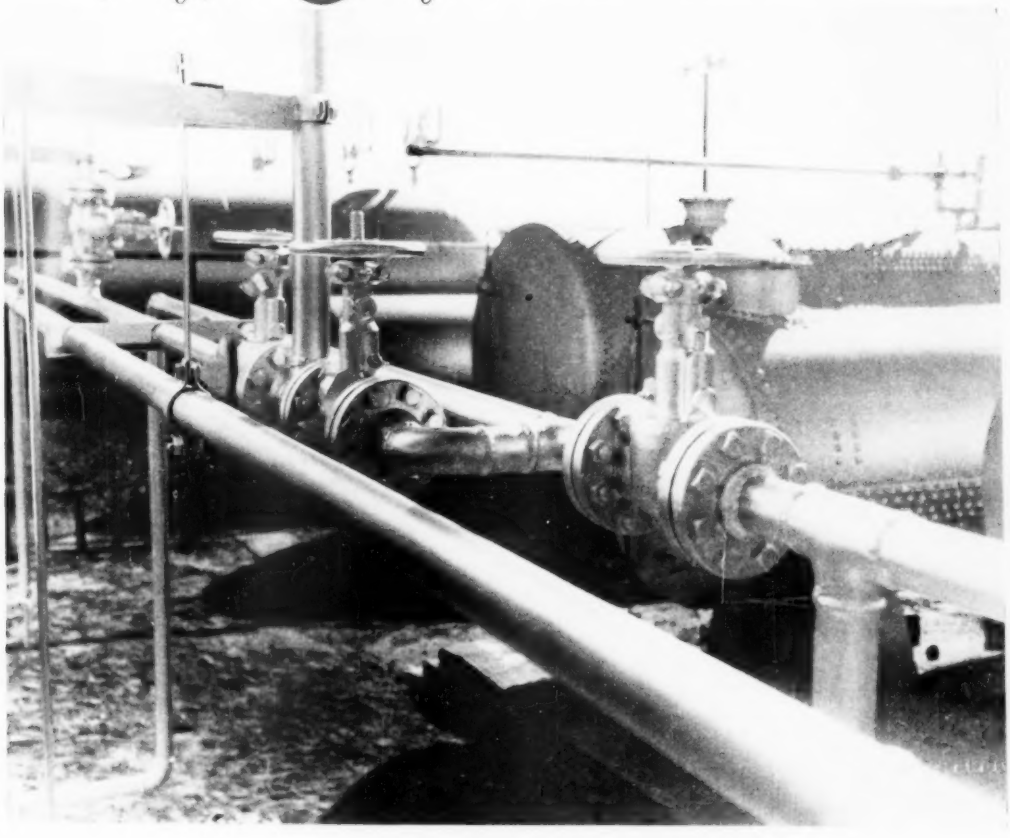

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placed on artificial lift to the estimated number of new producing wells to be drilled. The over-all average for this ratio on a nationwide basis is 0.909.

By far the largest number of wells expected to go on artificial lift in one state is the figure of 8,112, for the State of Texas. In 1950, 13,997 wells are forecast for drilling in Texas. The estimates indicate about 63 per cent of these may be expected to be completed as producers. Texas also will have 37.4 per cent of all wells drilled in the country, and will have 42.6 per cent of all wells placed on artificial lift.

For the installations of artificial-lifting equipment, the majority of the wells in 1950 will be those which are completed during the year. However, many others that are put on artificial lift for the first time will come from completions made in previous years—but which heretofore have been flowing.

From the over-all standpoint it is interesting to note that the greatest number of wells in the United States has long been very substantially in the artificial-lift classification. Upwards of 90 per cent of the total producing wells now are being operated on some form of artificial lift.

Some very interesting variations as between the different operating companies appeared in the Journal's 1950 poll on artificial-lift programs. As might be expected, some companies in certain states have drilling and producing programs for 1950 which will schedule proportionately more artificial-lift installations than other companies, yet in other states the same set of companies have their expected positions reversed. A representative sampling of these individual programs is reflected in the following tables for the states which will have the largest number of artificial installations in 1950. Chief point illustrated by these figures are the individual variations between companies. In arriving at the total artificial-lift installations for the future, the individual data were average and weighted.

**Texas, artificial-lift data.**—One group of 11 companies, the Journal's survey showed, completed 1,638 oil wells in Texas during 1949. The number of oil wells (old and new) put on pump during the same time interval were 1,646. This is an "artificial lift installation ratio" during the year, to new oil wells of 100.5 per cent.

These 11 companies were asked what percentage change they expected in the number of oil wells they would put on lift during 1950, as compared to 1949. Four companies expected decreases, 6 expected increases, one no change. The weighted average per cent change was 4.8 per cent decrease.

**Oklahoma, artificial-lift data.**—In this state a group of 10 representative companies from the several hundred total operators polled, supplied the information that they completed 502 oil wells during 1949. The number of oil wells (old and new) put on pump totaled 251. Thus the artificial-lift installation ratio to new oil wells for this particular group was 50.1 per cent.

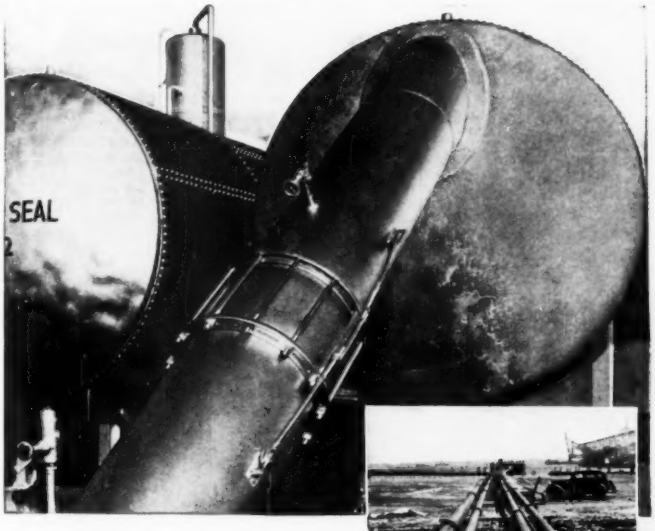
These pump data, as to percentage change in number of wells in 1950 to be put on artificial lift as compared to 1949, were as follows: Two companies expected decreases and six expected increases. Two operators felt that 1950 would bring no change. The weighted average per cent change in the artificial lift installation ratio in 1950 was 2.2 per cent increase.

**Kansas, artificial-lift data.**—Selecting nine companies from a total questionnaire of several hundred companies, two expected decreases, two no changes, and five increases. The weighted average per cent change in oil wells to be put on pump during 1950 was 11.5 per cent increase. These data are for operators who completed 277 new oil wells during 1949 and who in the same time interval placed 258 oil wells (old and new) on pump.

**California, artificial-lift data.**—A sampling of five companies from the total questionnaire list reflected that the weighted average per cent change in oil wells to be put on pump in 1950 was 2.4 per cent increase. This is from a group that completed 168 new oil wells during 1949 and placed 131 oil wells (old and new) on artificial lift during 1949.

**Louisiana, artificial-lift data.**—For nine of the larger operators among the total questionnaire list, three expected increases in 1950 in wells which they would place on artificial lift, two expected decreases percentagewise, and the rest no substantial change over 1949. The weighted average per cent change expected for 1950 in the number of oil wells to be placed on pump was 6.3 per cent decrease. This particular group completed 286 oil wells during 1949 and placed 174 wells (old and new) on lift during the same time.


HANDIEST... wherever you have pipe to join



Whether it's an equipment hookup, a field line, or a terminal—anywhere you're joining pipe—the handiest, surest way to get uniformly tight pipe joints is with Dresser Couplings and Long Sleeves.

There's no pipe threading—the only tool you need is a wrench. Dressers give you a "Flexible-Tight" connection every time, day or night, rain or shine, even where pipe ends don't meet.

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# Annual, Cumulative Production, And Remaining Reserves by Fields

**On this and the following four pages are detailed remaining reserves of the country's larger fields**

## PRODUCTION AND RESERVES—TEXAS

(In thousands of barrels)

### TEXAS PANHANDLE

| | 1949 production | January 1, 1950 Cumulative | January 1, 1950 Estimated reserves | January 1, 1950 No. of wells |
|---|---|---|---|---|
| RAILROAD DIST. 10: | | | | |
| Armstrong | 2,503 | 12,365 | 22,635 | 379 |
| Badger | 3,514 | 67,178 | 37,822 | 1,121 |
| Bentley-East Shamrock | 1,113 | 31,882 | 8,887 | 419 |
| Borger & Pantex | 3,262 | 109,154 | 35,846 | 439 |
| Bowers | 1,215 | 38,716 | 11,284 | 219 |
| Chapman | 798 | 12,005 | 5,995 | 119 |
| Cooper-Moore | 1,144 | 32,846 | 7,154 | 401 |
| Dial | 3,595 | 49,337 | 25,663 | 1,028 |
| Finley | 4,329 | 85,923 | 59,077 | 551 |
| Lefors | 1,555 | 31,997 | 14,003 | 216 |
| Pampa, South | 765 | 24,822 | 5,178 | 250 |
| Pampa, West | 4,935 | 92,809 | 52,191 | 1,084 |
| Roxana-Noel | 2,178 | 27,913 | 17,087 | 325 |
| Other fields | 2,259 | 46,152 | 29,178 | 604 |
| Total Tex. Panhandle | 33,165 | 663,099 | 332,000 | 7,155 |

### NORTH AND WEST CENTRAL TEXAS

| | | | | |
|---|---|---|---|---|
| RAILROAD DIST. 7-B | | | | |
| Reddin | 772 | 4,361 | 8,639 | 141 |
| Round Top | 1,105 | 1,611 | 8,389 | 87 |
| Wimberly | 986 | 8,175 | 10,825 | 196 |
| Other fields | 18,240 | 462,688 | 98,147 | 7,509 |
| Subtotal Dist. 7-B | 21,103 | 476,835 | 126,000 | 7,933 |
| RAILROAD DIST. 9: | | | | |
| Burkburnett | 1,453 | 166,470 | 18,530 | 1,656 |
| Chico, West | 911 | 1,240 | 3,760 | 46 |
| Electra | 2,685 | 161,334 | 38,666 | 2,643 |
| Hildreth | 1,472 | 13,236 | 16,764 | 171 |
| Hull-Silk-Sikes (incl. Caddo) | 3,328 | 37,869 | 42,131 | 443 |
| Joy | 1,600 | 6,109 | 8,891 | 200 |
| K-M-A | 4,799 | 127,728 | 52,272 | 2,274 |
| Nocona | 1,134 | 40,143 | 14,857 | 952 |
| Sivels Bend | 1,259 | 5,194 | 8,806 | 61 |
| Walnut Bend | 3,010 | 23,199 | 21,801 | 270 |
| Other fields | 27,294 | 515,251 | 174,522 | 12,715 |
| Subtotal Dist. 9 | 48,945 | 1,097,773 | 401,000 | 21,431 |
| Total N. & W. C. Tex. | 70,048 | 1,574,608 | 527,000 | 29,364 |

### EAST TEXAS

| | | | | |
|---|---|---|---|---|
| RAILROAD DIST. 5: | | | | |
| Opelika | 1,534 | 12,504 | 17,496 | 45 |
| Sulphur Bluff | 733 | 17,991 | 9,009 | 63 |
| Van and Shallow | 8,312 | 203,777 | 246,223 | 585 |
| Other fields | 3,613 | 289,323 | 51,272 | 1,173 |
| Subtotal Dist. 5 | 14,192 | 523,595 | 324,000 | 1,866 |
| RAILROAD DIST. 6: | | | | |
| East Texas field | 93,589 | 2,679,804 | 2,320,196 | 22,467 |
| Cayuga | 2,181 | 47,576 | 27,424 | 215 |
| Chapel Hill | 1,246 | 3,861 | 11,139 | 62 |
| Coke | 734 | 5,499 | 12,501 | 84 |
| Hawkins | 11,453 | 107,849 | 392,151 | 620 |
| Long Lake | 1,659 | 27,350 | *27,650 | 156 |
| Merigale-Paul | 1,001 | 3,761 | 13,239 | 165 |
| New Hope | 1,869 | 8,920 | 21,080 | 72 |
| Quitman | 2,902 | 16,774 | 28,226 | 141 |
| Rodessa | 938 | 60,147 | 9,843 | 256 |

### EAST TEXAS (Continued)

| | | | | |
|---|---|---|---|---|
| Talco | 6,168 | 116,815 | 103,185 | 729 |
| Other fields | 6,189 | 38,806 | 65,366 | 737 |
| Subtotal Dist. 6 | 129,929 | 3,117,162 | 3,032,000 | 25,704 |
| Total East Texas | 144,121 | 3,640,757 | 3,356,000 | 27,570 |

### SOUTHWEST TEXAS

| | | | | |
|---|---|---|---|---|
| RAILROAD DIST. 4: | | | | |
| Agua Dulce-Stratton | 8,227 | 73,383 | | 501 |
| Borregas | 786 | 1,881 | | 56 |
| Brayton | 1,113 | 5,665 | | 74 |
| La Gloria | 5,908 | 27,219 | | 246 |
| Monte Negra | 4 | 45 | | 1 |
| Seeligson | 8,641 | 67,040 | | 749 |
| Tijerina-Canales-Blucher | 3,093 | 15,222 | | 189 |
| Total S. Texas Giants | 27,772 | 190,455 | 1,159,545 | 1,816 |
| Colorado | 1,111 | 9,800 | 10,200 | 223 |
| Conoco-Driscoll | 859 | 11,824 | 9,176 | 64 |
| Flour Bluff and East | 756 | 15,621 | 12,379 | 92 |
| Fulton Beach | 794 | 1,233 | 5,767 | 47 |
| Garcia | 1,004 | 6,717 | 13,283 | 106 |
| Govt. Wells, No. & So. | 1,624 | 64,471 | 20,529 | 569 |
| Hoffman | 1,526 | 18,482 | 16,518 | 381 |
| Kelsey (all zones) | 2,040 | 12,763 | 17,237 | 236 |
| Loma Novia | 947 | 34,866 | 15,134 | 426 |
| Luby | 576 | 15,199 | 9,801 | 118 |
| Midway | 1,396 | 11,658 | 13,342 | 101 |
| Plymouth | 3,133 | 49,438 | 45,562 | 200 |
| Richard King and No. | 752 | 9,252 | 10,748 | 85 |
| Rincon | 1,528 | 21,175 | 28,825 | 136 |
| Saxet (all) | 1,762 | 65,961 | 24,039 | 130 |
| Sejita | 851 | 2,698 | 7,302 | 39 |
| Seven Sisters | 1,850 | 33,390 | 26,610 | 367 |
| Sun | 758 | 9,464 | 10,536 | 91 |
| Taft | 730 | 11,569 | 11,431 | 74 |
| White Point, East | 2,677 | 39,676 | 35,324 | 243 |
| Willamar | 2,383 | 20,256 | 69,744 | 231 |
| Other fields | 21,019 | 320,756 | 250,968 | 4,165 |
| Subtotal Dist. 4 | 77,848 | 976,724 | 1,824,000 | 9,910 |
| RAILROAD DIST. 1: | | | | |
| Charlotte | 2,026 | 4,768 | 15,232 | 267 |
| Darst Creek | 2,503 | 73,286 | 36,714 | 312 |
| Luling-Branyon | 1,430 | 92,411 | 22,589 | 602 |
| Other fields | 3,572 | 115,488 | 38,465 | 2,353 |
| Subtotal Dist. 1 | 9,531 | 285,953 | 113,000 | 3,534 |
| Total S.W. Texas | 87,379 | 1,262,677 | 1,937,000 | 13,474 |

### GULF COAST TEXAS

| | | | | |
|---|---|---|---|---|
| RAILROAD DIST. 2: | | | | |
| Bloomington | 1,796 | 4,115 | 12,885 | 134 |
| Bonnie View | 854 | 4,486 | 6,514 | 74 |
| Falls City | 1,045 | 5,676 | 14,324 | 64 |
| Ganado & Deep & West | 1,132 | 9,644 | 20,356 | 113 |
| Greta & Deep | 3,056 | 52,034 | 72,966 | 201 |
| Heyser | 1,109 | 33,902 | 21,098 | 193 |
| La Rosa & North | 858 | 12,100 | 17,900 | 65 |
| La Ward, North | 662 | 6,777 | 15,223 | 99 |
| Lolita | 1,480 | 18,420 | 22,580 | 223 |

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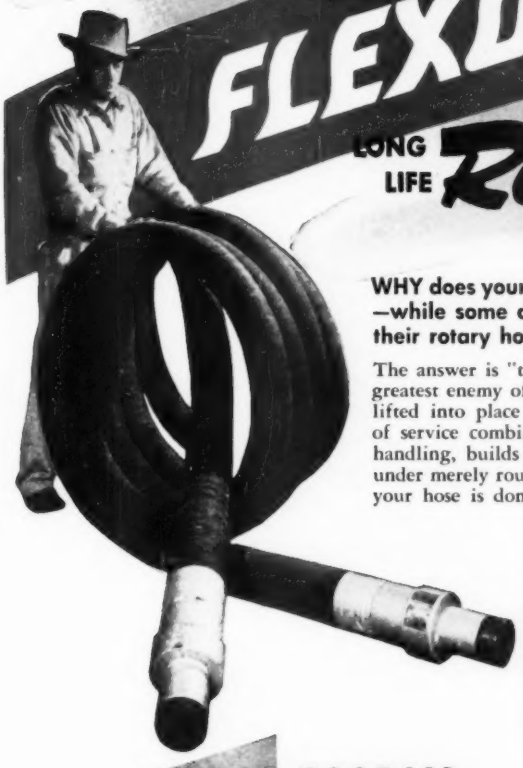
GOODALL

# FLEXO CORD

LONG LIFE **Rotary Hose**



**WHY does your rotary hose rupture after only several rig moves —while some drillers get well over 150,000 feet of hole with their rotary hose?**

The answer is "torsional twist" — which leads to fabric breakage — the greatest enemy of rotary hose. More rotary hoses are damaged in being lifted into place — and during rig moves — than by all other ravages of service combined. Torsional twist, resulting from hasty or careless handling, builds up internal stresses which later cause fabric ruptures under merely routine drilling pressures. And when the fabric ruptures—your hose is done for!

### A New Technique in Rotary Hose Construction

Goodall has now effectively overcome this weakness with the development of the new Long-Life FLEXO *CORD* Rotary Hose — with *cord carcass.*

The new Goodall FLEXO *CORD* Rotary Hose is as superior to ordinary rotary hose as cord automobile tires are superior to the old obsolete fabric tires — and for the same reasons!

The new cord structure in FLEXO *CORD* Rotary Hose is not only far stronger than the canvas duck material formerly used — it is laid in multiple plies at precisely the correct transverse angles to withstand torsional twist.

### Perfect Balance

Balanced construction — an essential to long life and good performance in rotary hose — is assured by the new Goodall method of winding the steel cables of the pressure element at angles corresponding *exactly* with the angles of the cord plies. This eliminates destructive internal stresses . . . prevents elongation and distortion of the hose under pressure . . . permits it to hang evenly in the rig.

### Stronger—More Flexible—Yet Costs No More!

The new Goodall FLEXO *CORD* Rotary Hose is more flexible — for easier handling. It is also stronger and more durable than any rotary hose ever manufactured — yet there is no increase in price to you!

### Field-Tested and Proven

Extensive field tests under severe drilling conditions have proved that the new Goodall FLEXO *CORD* Rotary Hose has what it takes to withstand torsional twist, whipping, jerking and pulsation.

This means longer service life, better performance — substantial savings for you. Make your *next* hose, Goodall FLEXO *CORD* Rotary Hose!

2082.

To get longer service from your Goodall Rotary Hose, use a swivel joint at each end.

**GOODALL "Extras"**

**Barney Couplings — the only couplings stronger than the hose itself. Goodall Service Department — the only complete repair department maintained exclusively for rotary hose.**

**GOODALL RUBBER COMPANY**
**TRENTON, N. J.**

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DISTRIBUTORS: Texas and Louisiana — Houston Oil Field Material Co. — Wilson Supply Co., Oklahoma — Iverson Supply Company

## GULF COAST TEXAS (Continued)

| | 1949 production | January 1, 1950 Cumulative | January 1, 1950 Estimated reserves | No. of wells |
|---|---|---|---|---|
| McFaddin & East & No. | 1,227 | 16,224 | 23,776 | 82 |
| Placedo & East | 1,675 | 28,846 | 26,154 | 181 |
| Refugio area | 2,353 | 59,780 | 45,220 | 214 |
| Roche | 714 | 2,027 | 7,973 | 45 |
| Slick-Wilcox | 1,067 | 8,384 | 16,616 | 46 |
| Tom O'Connor | 12,166 | 146,451 | 353,549 | 639 |
| West Ranch | 5,058 | 59,371 | 140,629 | 532 |
| Other fields | 13,588 | 96,103 | 134,237 | 1,434 |
| Subtotal Dist. 2 | 49,840 | 564,340 | 952,000 | 4,339 |
| RAILROAD DIST. 3: | | | | |
| Amelia | 1,078 | 17,665 | 22,335 | 98 |
| Anahuac | 7,090 | 94,251 | 155,749 | 353 |
| Barbers Hill-Deep | 1,954 | 89,220 | 30,780 | 124 |
| Bay City & North | 1,532 | 18,084 | 11,916 | 82 |
| Boling | 1,006 | 11,734 | 13,266 | 102 |
| Cedar Point | 794 | 6,000 | 12,000 | 37 |
| Chocolate Bayou (all) | 3,485 | 6,604 | 23,396 | 73 |
| Clear Lake | 769 | 10,759 | 10,241 | 46 |
| Conroe & West | 11,633 | 281,210 | 268,790 | 884 |
| Dyersdale | 1,379 | 7,064 | 12,936 | 94 |
| Esperson Dome & South | 1,226 | 12,680 | 17,320 | 109 |
| Fairbanks | 1,903 | 27,654 | 32,346 | 265 |
| Fannett | 1,533 | 19,280 | 10,720 | 65 |
| Fig Ridge | 848 | 12,912 | 5,088 | 70 |
| Gillock | 1,999 | 17,651 | 42,349 | 148 |
| Goose Creek | 1,741 | 83,731 | 26,269 | 171 |
| Hastings | 14,308 | 183,214 | 266,786 | 660 |
| High Island | 1,888 | 26,752 | 13,248 | 88 |
| Hull | 1,750 | 106,802 | 28,198 | 192 |
| Humble (all) | 1,289 | 133,994 | 26,006 | 267 |
| Hutchins-Kubela & So. | 630 | 4,135 | 5,865 | 64 |
| Katy & North | 5,271 | 23,925 | 96,075 | 66 |
| Lake Creek | 1,302 | 8,684 | 21,316 | 3 |
| Livingston (all) | 1,356 | 16,606 | 18,394 | 147 |
| Lovell Lake & North | 1,116 | 15,527 | 14,473 | 105 |
| Magnet-Withers | 1,845 | 31,782 | 23,218 | 250 |
| Manvel & Northwest | 2,115 | 42,166 | 37,834 | 162 |
| Markham & North | 1,044 | 8,814 | 14,286 | 88 |
| Mercy & West | 569 | 6,525 | 7,475 | 37 |
| North Withers | 1,884 | 23,817 | 21,183 | 150 |
| Old Ocean | 5,117 | 54,101 | 120,899 | 147 |
| Oyster Bayou | 2,911 | 17,881 | 42,119 | 36 |
| Pierce Junction | 1,305 | 40,051 | 19,849 | 89 |
| Nort Neches & No. & W. | 1,155 | 12,923 | 12,077 | 78 |
| Raccoon Bend & Cockfield | 1,782 | 45,003 | 29,997 | 158 |
| Red Fish Reef & East | 801 | 5,592 | 7,408 | 35 |
| Saratoga | 780 | 33,094 | 8,906 | 253 |
| Segno & Deep | 841 | 16,222 | 13,778 | 103 |
| Sheridan | 2,120 | 6,629 | 28,371 | 2 |
| Silsbee & West | 1,871 | 9,774 | 14,226 | 59 |
| Sour Lake | 1,337 | 86,234 | 18,766 | 237 |
| South Houston | 1,408 | 18,865 | 24,135 | 68 |
| South Liberty | 1,318 | 19,553 | 12,447 | 91 |
| Stowell | 2,726 | 29,712 | 45,288 | 92 |
| Sugarland | 1,187 | 45,034 | 24,966 | 40 |
| Sugar Valley | 2,063 | 6,186 | 23,814 | 116 |
| Thompson (all) | 11,734 | 142,719 | 182,281 | 355 |
| Tomball | 2,394 | 46,507 | 38,493 | 418 |
| Webster | 13,144 | 138,782 | 241,218 | 210 |
| West Columbia & New & Deep | 2,657 | 108,489 | 31,511 | 160 |
| Other fields | 20,336 | 456,515 | 114,593 | 1,899 |
| Subtotal Dist. 3 | 155,324 | 2,689,108 | 2,345,000 | 9,646 |
| Total Gulf Coast | 205,164 | 3,253,448 | 3,297,000 | 13,985 |

## WEST TEXAS

| | | | | |
|---|---|---|---|---|
| RAILROAD DIST. 7-C: | | | | |
| Barnhart | 1,345 | 9,042 | 15,958 | 70 |
| Big Lake | 1,032 | 109,945 | 15,055 | 187 |
| Jameson | 1,476 | 2,670 | 17,330 | 69 |
| McCamey & Ellenburger | 3,025 | 77,389 | 47,611 | 898 |
| Midway Lane | 1,400 | 2,687 | 17,313 | 36 |
| Todd-Ellen & Penna. | 3,207 | 17,182 | 67,818 | 98 |
| World | 1,129 | 13,541 | 13,459 | 134 |
| Other fields | 4,399 | 13,533 | 52,456 | 568 |
| Subtotal Dist. 7-C | 17,013 | 245,989 | 247,000 | 2,060 |
| RAILROAD DIST. 8: | | | | |
| Abell (all) | 819 | 7,403 | 10,597 | 110 |
| Adair | 887 | 1,940 | 16,060 | 104 |
| Andector | 3,871 | 8,081 | 51,919 | 91 |
| Anton-Irish | 2,529 | 5,470 | 14,530 | 134 |
| Bedford | 803 | 2,877 | 32,123 | 14 |
| Block 31 | 1,894 | 6,114 | 43,886 | 71 |

## WEST TEXAS (Continued)

| | 1949 production | January 1, 1950 Cumulative | January 1, 1950 Estimated reserves | No. of wells |
|---|---|---|---|---|
| Cedar Lake | 1,006 | 5,927 | 9,073 | 90 |
| Cowden, North | 6,109 | 81,590 | 143,410 | 741 |
| Cowden, South | 2,646 | 12,781 | 22,219 | 279 |
| Dollar Hide | 4,615 | 8,813 | 66,187 | 162 |
| Embar | 1,076 | 9,788 | 15,212 | 35 |
| Foster | 6,013 | 57,173 | 87,827 | 655 |
| Fuhrman-Mascho | 1,387 | 12,572 | 17,428 | 287 |
| Fullerton | 10,069 | 60,802 | 264,198 | 683 |
| Garza | 2,575 | 8,153 | 31,847 | 292 |
| Goldsmith (all) | 9,141 | 102,349 | 297,651 | 1,228 |
| Hendrick | 1,300 | 214,801 | 15,199 | 211 |
| Howard-Glasscock | 4,986 | 139,467 | 70,533 | 984 |
| Iatan, E. Howard & No. | 856 | 25,601 | 14,399 | 460 |
| Jordan (all) | 2,621 | 22,032 | 27,968 | 288 |
| Kermit & Ellen | 823 | 36,523 | 13,477 | 543 |
| Keystone (all) | 11,029 | 76,564 | 283,436 | 860 |
| McElroy | 8,146 | 193,690 | 141,310 | 851 |
| Mabee | 818 | 5,426 | 14,574 | 93 |
| Martin (all) | 2,545 | 6,183 | 53,817 | 80 |
| Means | 1,506 | 16,146 | 23,855 | 224 |
| Midland Farms | 1,630 | 4,468 | 20,532 | 68 |
| Monahans (all) | 699 | 4,529 | 35,471 | 53 |
| Pecos Valley, High & low grav. & Ellen | 635 | 4,929 | 10,071 | 287 |
| Penwell-Ellen & 4,500 ft. | 700 | 30,615 | 14,485 | 187 |
| Sand Hills (all) | 3,751 | 30,169 | 64,831 | 385 |
| Seminole-San Angelo & West | 5,610 | 53,685 | 146,315 | 364 |
| Shafter Lake (all) | 3,533 | 5,286 | 29,714 | 109 |
| Scurry County Reef | 4,166 | 4,172 | 895,828 | 296 |
| Slaughter-Levelland | 22,822 | 163,130 | 486,870 | 3,555 |
| Three Bar | 796 | 1,802 | 13,188 | 27 |
| Toborg | 1,696 | 12,766 | 12,234 | 680 |
| Tunstill | 785 | 1,293 | 13,707 | 78 |
| T-X-L (all) | 16,474 | 63,394 | 186,606 | 358 |
| University-Waddell Dev. & Ellen | 949 | 1,696 | 8,304 | 14 |
| Waddell & Ellen | 1,136 | 12,581 | 12,419 | 177 |
| Ward-No. Estes | 2,797 | 67,223 | 52,777 | 1,341 |
| Wasson & 66 Ft. & 72 Ft. | 19,278 | 197,563 | 452,437 | 1,630 |
| Welch | 1,129 | 4,987 | 15,013 | 165 |
| Wheeler-Dev. & Ellen & Sil. | 3,034 | 11,867 | 38,135 | 96 |
| Yarbrough & Allen | 664 | 1,181 | 8,819 | 19 |
| Yates & Smith sand | 11,883 | 361,757 | 438,243 | 621 |
| Other fields | 16,826 | 217,546 | 252,266 | 3,727 |
| Subtotal Dist. 8 | 211,133 | 2,384,904 | 4,991,000 | 23,812 |
| Total West Texas | 288,146 | 2,630,893 | 5,238,000 | 25,872 |

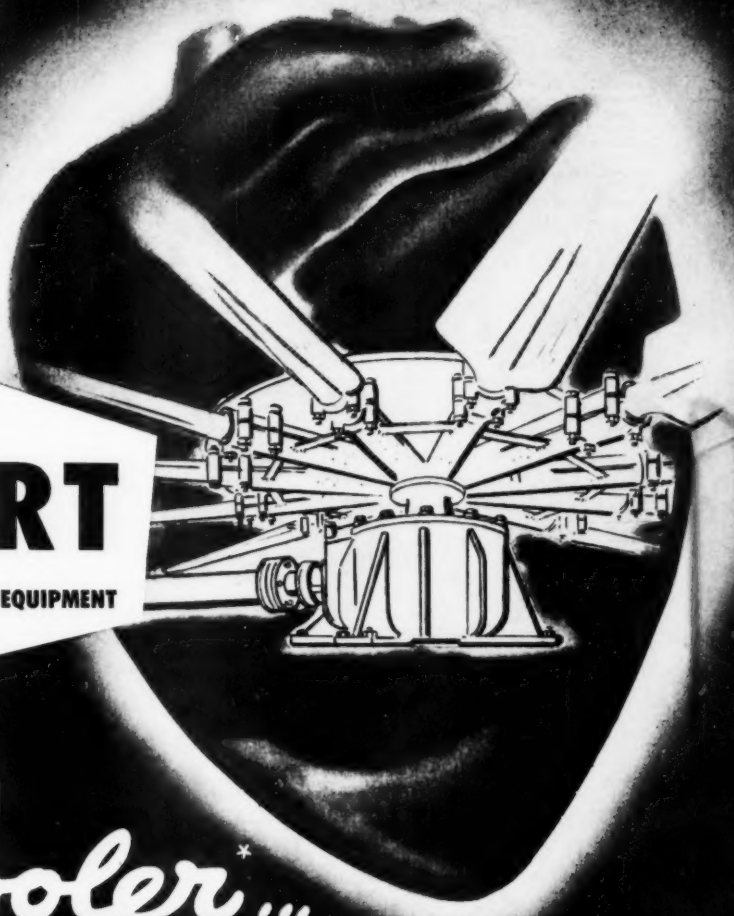
## NEW MEXICO

| | | | | |
|---|---|---|---|---|
| Arrowhead | 1,289 | 15,820 | 19,180 | 119 |
| Brunson | 3,015 | 7,389 | 22,611 | 78 |
| Caprock | 825 | 2,838 | 12,162 | 127 |
| Cooper-Jal | 793 | 26,298 | 8,702 | 105 |
| Drinkard | 6,742 | 17,100 | 37,900 | 360 |
| Eunice | 4,414 | 95,653 | 54,347 | 458 |
| Grayburg-Jackson | 1,763 | 24,889 | 18,111 | 328 |
| Hobbs | 3,732 | 127,335 | 47,665 | 256 |
| Langlie-Mattix | 1,126 | 24,680 | 15,320 | 373 |
| Lovington, West | 740 | 3,185 | 5,815 | 57 |
| Maljamar | 2,042 | 19,705 | 25,295 | 262 |
| Monument | 6,488 | 100,345 | 84,655 | 488 |
| Paddock | 1,568 | 5,152 | 10,848 | 101 |
| Vacuum | 4,449 | 48,129 | 81,871 | 396 |
| Other fields | 8,691 | 115,279 | 121,518 | 2,073 |
| Total New Mexico | 47,677 | 633,797 | 566,000 | 5,581 |

## PRODUCTION AND RESERVES—OKLAHOMA

(In thousands of barrels)

| | | | | |
|---|---|---|---|---|
| Allen (Deep) | 1,317 | 60,952 | 19,048 | 292 |
| Alma, North | 546 | 681 | 3,319 | 43 |
| Apache | 1,749 | 16,185 | 13,815 | 45 |
| Avant | 570 | 99,556 | 5,444 | 624 |
| Bebee | 740 | 18,177 | 6,823 | 225 |
| Bowlegs | 1,176 | 130,310 | 19,690 | 181 |
| Brock, West | 858 | 1,548 | 3,452 | 51 |
| Burbank | 2,338 | 228,324 | 36,676 | 1,685 |
| Burbank, South | 901 | 46,333 | 3,667 | 218 |
| Cache Creek | 1,780 | 6,709 | 8,291 | 291 |
| Castle, East | 445 | 662 | 4,338 | 36 |
| Cement | 4,207 | 56,028 | 43,972 | 633 |
| Ceres, South | 794 | 2,159 | 2,841 | 48 |
| Chitwood | 623 | 1,537 | 5,463 | 14 |
| Coffee Creek | 419 | 1,251 | 3,749 | 51 |
| Coon Creek | 1,539 | 5,553 | 9,459 | 40 |
| Crescent | 635 | 22,401 | 2,599 | 131 |



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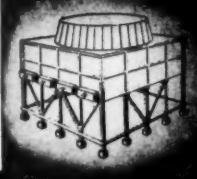
IS THE MECHANICAL EQUIPMENT

DriCooler*...

*... the only finned tube cooling units that have mechanical equipment proved in over 5,000 actual installations.*

Fans, driveshafts, Geareducers and fan cylinders long used successfully on the toughest air moving job—water cooling towers—have been further improved and tailored for the DriCooler.

This new mechanical equipment with the "Made-by-Marley" label is your guarantee of "stout-hearted" air-cooled units.



Induced Draft horizontal heat transfer surface under the fan.

*DriCooler is the exclusive trade-mark of The Marley Co., Inc.

Forced Draft horizontal heat transfer surface over the fan.

MARLEY DRICOOLERS

THE MARLEY COMPANY, INC. • KANSAS CITY 15, KANSAS

WATER COOLING TOWERS • DRICOOLERS • SPRAY NOZZLES

## OKLAHOMA (Continued)

| | 1949 production | January 1, 1950 Cumulative | January 1, 1950 Estimated reserves | January 1, 1950 No. of wells |
|---|---|---|---|---|
| Cromwell | 591 | 62,824 | 7,176 | 206 |
| Cumberland | 3,275 | 33,049 | 41,951 | 145 |
| Cushing | 2,726 | 382,387 | 42,613 | 1,491 |
| Davenport, South | 707 | 2,007 | 2,993 | 78 |
| Earlsboro | 535 | 131,712 | 8,288 | 131 |
| Edmond | 434 | 23,476 | 3,524 | 64 |
| Edmond, West | 5,478 | 87,964 | 62,036 | 792 |
| Elk City | 788 | 813 | 19,187 | 27 |
| Empire-Comanche | 648 | 29,678 | 7,322 | 388 |
| Eola | 370 | 722 | 2,278 | 6 |
| Fitts | 1,076 | 107,202 | 12,798 | 472 |
| Fourdee | 750 | 1,484 | 3,516 | 86 |
| Fox-Graham | 414 | 45,201 | 5,799 | 339 |
| Garber | 440 | 59,539 | 5,461 | 451 |
| Glenn Pool | 2,587 | 238,535 | 26,465 | 1,712 |
| Golden Trend (Garvin-McLain counties) | 15,347 | 34,586 | 145,414 | 711 |
| Happy Valley | 397 | 397 | 4,603 | 28 |
| Healdton | 2,527 | 210,955 | 39,045 | 1,979 |
| Hewitt-Bayou | 2,716 | 109,798 | 20,202 | 996 |
| Hoover, Northwest | 766 | 2,400 | 4,600 | 119 |
| Inconium, Northwest | 921 | 1,809 | 2,199 | 23 |
| Jones | 778 | 2,485 | 3,515 | 138 |
| Knox | 2,250 | 21,794 | 18,206 | 290 |
| Little River | 1,194 | 123,009 | 16,991 | 182 |
| Lone Grove, Southwest | 1,023 | 6,561 | 3,439 | 101 |
| Lucien | 589 | 35,995 | 4,009 | 110 |
| Oklahoma City | 7,703 | 668,458 | 66,542 | 634 |
| Oscar | 437 | 13,537 | 2,463 | 222 |
| Pauls Valley | 1,488 | 17,337 | 10,663 | 75 |
| Perry, Northwest | 520 | 883 | 2,117 | 26 |
| Ramsey | 712 | 13,470 | 6,530 | 32 |
| Seminole City | 1,441 | 153,681 | 16,319 | 318 |
| Sholem-Alechem | 5,831 | 53,162 | 56,838 | 527 |
| Sholem-Alechem, N.W. | 666 | 1,116 | 8,884 | 27 |
| Soldier Creek | 1,048 | 5,064 | 3,936 | 313 |
| Stroud | 457 | 17,772 | 4,128 | 266 |
| St. Louis | 1,283 | 172,840 | 17,160 | 375 |
| Tatums | 3,795 | 60,225 | 29,775 | 897 |
| Watchorn, East | 525 | 6,008 | 2,992 | 27 |
| Velma (Deep and Shallow) | 9,656 | 40,573 | 59,427 | 1,079 |
| Velma, West | 478 | 2,555 | 4,445 | 43 |
| Witcher | 2,094 | 3,572 | 11,428 | 118 |
| Yale-Quay | 796 | 27,464 | 7,536 | 189 |
| Miscellaneous | 41,109 | 2,319,465 | 208,543 | 33,517 |
| Total Oklahoma | 150,003 | 6,031,926 | 1,226,000 | 54,360 |

## PRODUCTION AND RESERVES—KANSAS

(In thousands of barrels)

| | | | | |
|---|---|---|---|---|
| Augusta | 477 | 44,913 | 5,087 | 160 |
| Barry | 547 | 3,825 | 4,175 | 42 |
| Bemis-Shutts | 4,560 | 59,454 | 25,546 | 522 |
| Big Creek | 766 | 11,163 | 5,837 | 166 |
| Bloomer | 2,492 | 33,020 | 16,980 | 280 |
| Bornholdt | 612 | 12,520 | 4,480 | 136 |
| Burnett | 2,748 | 34,465 | 25,535 | 264 |
| Burnett, Southwest | 749 | 1,544 | 3,456 | 72 |
| Burrton-Haury | 1,211 | 44,318 | 10,682 | 362 |
| Carmi | 719 | 7,765 | 3,235 | 103 |
| Chase | 3,258 | 53,364 | 16,636 | 533 |
| Chitwood | 669 | 5,166 | 4,834 | 74 |
| Drach | 483 | 3,823 | 3,177 | 52 |
| Edwards | 942 | 11,393 | 8,607 | 106 |
| El Dorado | 3,084 | 201,705 | 53,295 | 1,758 |
| Fairport | 908 | 20,973 | 9,027 | 181 |
| Forest Hill | 377 | 2,124 | 1,876 | 44 |
| Geneseo | 1,861 | 26,029 | 18,139 | 192 |
| Gorham | 1,445 | 35,932 | 17,068 | 246 |
| Hall-Gurney | 3,433 | 40,823 | 29,177 | 749 |
| Kraft-Prusa | 5,463 | 43,543 | 41,457 | 605 |
| Lindsborg | 492 | 5,268 | 3,732 | 101 |
| Morel | 1,399 | 8,819 | 11,181 | 124 |
| Otis-Albert | 799 | 7,431 | 4,569 | 142 |
| Peace Creek | 704 | 12,026 | 4,974 | 119 |
| Ray | 1,246 | 9,655 | 8,345 | 135 |
| Raymond | 495 | 12,193 | 4,807 | 81 |
| Richardson | 595 | 9,935 | 5,065 | 62 |
| Ritz-Canton | 563 | 41,160 | 5,840 | 203 |
| Russell | 404 | 8,363 | 2,637 | 71 |
| Silica | 4,597 | 87,776 | 32,224 | 783 |
| Sittner | 439 | 2,776 | 2,224 | 58 |
| Stoltenberg | 2,098 | 29,641 | 12,359 | 343 |
| Trapp | 8,905 | 114,599 | 65,401 | 1,310 |
| Walters | 380 | 4,631 | 4,361 | 52 |
| Webster | 405 | 1,032 | 3,968 | 44 |
| Zenith | 427 | 24,143 | 2,857 | 237 |
| Miscellaneous | 39,380 | 903,425 | 190,120 | 18,781 |
| Total Kansas | 100,132 | 1,980,735 | 673,000 | 29,075 |

## PRODUCTION AND RESERVES—ILLINOIS

(In thousands of barrels)

| | 1949 production | January 1, 1950 Cumulative | January 1, 1950 Estimated reserves | January 1, 1950 No. of wells |
|---|---|---|---|---|
| Albion | 979 | 8,149 | 6,851 | 255 |
| Allendale | 722 | 5,313 | 4,687 | 261 |
| Assumption, North | 1,194 | 1,201 | 4,799 | 105 |
| Benton | 532 | 20,728 | 4,278 | 226 |
| Boyd | 1,062 | 6,592 | 8,408 | 107 |
| Centralia | 1,712 | 34,037 | 15,961 | 543 |
| Clay City-Noble | 8,347 | 125,651 | 59,349 | 2,476 |
| Dale-Hoodville | 1,300 | 26,693 | 13,307 | 406 |
| Dix | 383 | 6,165 | 3,835 | 91 |
| Fairfield | 666 | 866 | 2,134 | 54 |
| Inman, East | 1,905 | 7,411 | 7,589 | 263 |
| Iola | 527 | 6,434 | 2,566 | 180 |
| Johnsonville | 941 | 25,263 | 4,737 | 358 |
| Loudon | 6,077 | 149,654 | 60,346 | 1,955 |
| Marine | 988 | 5,676 | 9,324 | 128 |
| Mattoon | 778 | 8,907 | 5,093 | 394 |
| Maud Consolidated | 523 | 2,241 | 3,859 | 126 |
| Maud, North | 1,367 | 1,655 | 6,345 | 158 |
| Maunie, South | 392 | 2,856 | 2,144 | 73 |
| Mill Shoals | 602 | 2,251 | 5,749 | 165 |
| Mt. Carmel | 378 | 8,199 | 1,801 | 314 |
| New Harmony-Keensburg | 2,783 | 55,606 | 24,394 | 1,123 |
| Parkersburg | 412 | 5,907 | 2,093 | 128 |
| Patoka | 607 | 9,435 | 2,565 | 126 |
| Phillipstown | 861 | 9,328 | 4,672 | 261 |
| Roland | 1,049 | 9,433 | 5,567 | 193 |
| Rural Hill | 819 | 11,941 | 3,059 | 256 |
| Sailor Springs Consolidated | 2,371 | 15,822 | 11,178 | 527 |
| Salem | 4,106 | 212,166 | 37,834 | 2,299 |
| St. James | 488 | 10,909 | 4,091 | 165 |
| Stokes-Brownsville | 416 | 6,099 | 1,901 | 156 |
| Thompsonville, North | 608 | 1,132 | 2,868 | 62 |
| Tonti | 398 | 9,082 | 2,918 | 76 |
| Woodlawn | 534 | 11,590 | 3,410 | 148 |
| Bridgeport | 1,943 | 242,386 | 22,614 | 3,531 |
| Robinson | 1,381 | 157,016 | 12,984 | 6,675 |
| Miscellaneous | 13,935 | 207,698 | 41,690 | 6,876 |
| Total Illinois | 64,086 | 1,431,492 | 417,000 | 31,240 |

## PRODUCTION AND RESERVES—LOUISIANA

(In thousands of barrels)

### NORTH LOUISIANA

| | | | | |
|---|---|---|---|---|
| Bellevue | 585 | 12,652 | 5,348 | 305 |
| Benton | 1,670 | 3,153 | 11,847 | 13 |
| Caddo | 4,968 | 184,106 | 30,894 | 2,527 |
| Cotton Valley | 3,507 | 61,749 | 33,251 | 163 |
| Delhi-Big Creek | 9,226 | 37,298 | 127,702 | 377 |
| Haynesville | 4,941 | 103,136 | 26,864 | 371 |
| Haynesville, East | 389 | 1,415 | 3,585 | 18 |
| Holly Ridge | 963 | 6,716 | 8,284 | 38 |
| Homer | 857 | 79,036 | 10,964 | 316 |
| Knowles | 894 | 1,454 | 3,546 | 19 |
| Lake St. John | 8,080 | 29,728 | 65,272 | 144 |
| Lisbon | 2,181 | 16,649 | 10,351 | 170 |
| Little Creek | 522 | 6,659 | 5,341 | 66 |
| Nebo | 2,374 | 24,537 | 20,463 | 153 |
| Olla | 1,989 | 28,362 | 21,638 | 168 |
| Ora | 1,912 | 5,578 | 4,422 | 215 |
| Rodessa | 1,297 | 92,795 | 10,205 | 261 |
| Saline Lake | 396 | 469 | 4,531 | 9 |
| Sligo | 475 | 6,573 | 3,427 | 62 |
| Urania-Georgetown | 895 | 31,795 | 8,205 | 227 |
| Miscellaneous | 3,307 | 114,302 | 37,860 | 596 |
| Total North Louisiana | 51,428 | 848,162 | 454,000 | 6,218 |

### SOUTH LOUISIANA

| | | | | |
|---|---|---|---|---|
| Anse la Butte-Deep & Shallow | 2,148 | 21,962 | 35,038 | 86 |
| Avery Island | 2,367 | 9,027 | 35,973 | 37 |
| Barataria | 1,789 | 12,904 | 15,596 | 26 |
| Barataria, West | 1,668 | 3,861 | 11,139 | 23 |
| Bay St. Elaine | 2,053 | 6,078 | 13,972 | 35 |
| Bayou Blue | 815 | 6,588 | 8,412 | 41 |
| Bayou Sale | 4,972 | 27,150 | 62,850 | 72 |
| Black Bayou | 772 | 16,056 | 8,944 | 26 |
| Bosco | 897 | 30,185 | 11,815 | 42 |
| Caillou Island | 4,082 | 50,678 | 39,322 | 75 |
| Cankton, North | 893 | 2,981 | 7,019 | 23 |
| Chacahoula | 683 | 7,141 | 7,859 | 31 |
| Charenton | 1,508 | 18,755 | 11,245 | 119 |
| Crowley, North | 1,744 | 18,005 | 21,995 | 49 |
| David Haas | 1,091 | 1,794 | 8,206 | 19 |
| Delta Farms | 7,570 | 31,101 | 58,599 | 109 |
| Egan | 2,319 | 8,678 | 31,322 | 66 |

# FRED E. COOPER INC.

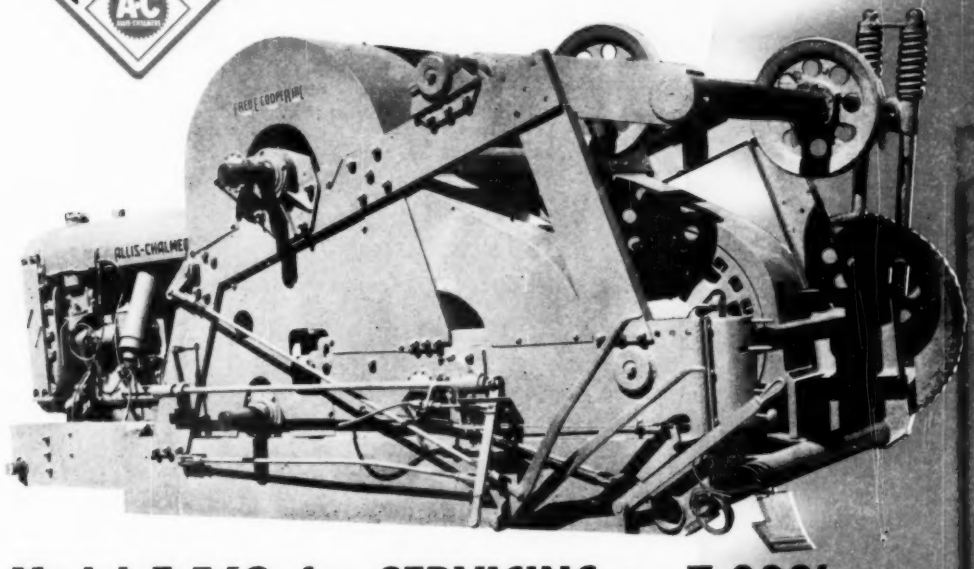
TULSA

HOUSTON • ODESSA • LOS ANGELES

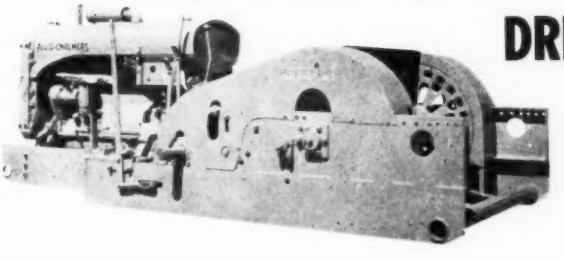
DRAW WORKS
SPUDDERS
WINCHES
POWER UNITS

**A COMPLETE NEW LINE**

of Tractor Winches; Skid Winches; Draw-works and Spudders for Servicing, Drilling and Work-over. Engines for Mud Pumps, Pipe Line Pumps, Well Pumps and any Power Unit application.




## Model E-563 for SERVICING to 7,000'
## DRILLING to 4,000'



**Single Drum Servicing Winch with Seat Controls**

These Model E-563 Units are ideal for rotary Draw-works on shallow oil and water well drilling, and on work-over jobs. Single and Double Pole Masts are available for all Units.

Air Controls; rugged construction, light weight, low center of gravity; powered by Allis-Chalmers.

TWO DRUM SIZES: Capacities 6,740' of ¾" line and 9,130' of ¾" line. Eight Drum Speeds from 21' p.m. to 1,164' p.m. Maximum Line Pull 54,700 lbs.

Makes an ideal trailer unit (frame of unit mounts directly on tandem axles; no float required. Releases truck for other jobs). Available in Single Drum, Double Drum or Three Drum Units. *Unit shown is Double Drum with Cooper Quick-Drop Spudder.*

Allis-Chalmers slow speed, high torque engines used in all Cooper Well Servicing and Drilling Units are the result of over 100 years of experience in the manufacture of power machinery.

**FRED E. Cooper, Inc.**

Phone 2-2194
P. O. Box 1890

**TULSA, OKLA.**

**HOUSTON** **ODESSA** **LOS ANGELES**

## SOUTH LOUISIANA (Continued)

| | 1949 production | January 1, 1950 Cumulative | Estimated reserves | No. of wells |
|---|---|---|---|---|
| Eola | 826 | 25,657 | 9,343 | 63 |
| Erath | 5,886 | 36,634 | 88,366 | 32 |
| Garden Island Bay | 1,545 | 15,180 | 14,820 | 48 |
| Gibson | 772 | 15,206 | 9,794 | 31 |
| Gibson, Northeast | 939 | 3,487 | 11,513 | 17 |
| Golden Meadow | 4,133 | 35,694 | 39,306 | 214 |
| Good Hope | 2,172 | 9,253 | 25,747 | 34 |
| Grand Bay | 3,548 | 27,773 | 22,227 | 70 |
| Gueydan | 1,708 | 13,814 | 16,186 | 28 |
| Hackberry, East | 1,483 | 39,808 | 20,202 | 55 |
| Hackberry, West | 2,141 | 27,586 | 32,414 | 71 |
| Horseshoe Bayou | 1,166 | 6,182 | 18,818 | 15 |
| Iberia | 1,586 | 40,721 | 19,279 | 62 |
| Iowa | 2,202 | 66,843 | 33,127 | 62 |
| Jennings, Deep & Shallow | 1,225 | 101,012 | 18,988 | 95 |
| Lafitte | 3,995 | 60,762 | 64,238 | 68 |
| Lake Chicot | 1,090 | 6,921 | 11,079 | 24 |
| Lake Pelto | 1,605 | 10,552 | 12,448 | 29 |
| Lake Salvador | 1,851 | 12,325 | 21,675 | 28 |
| Lake Verret, West | 1,389 | 9,967 | 14,033 | 42 |
| La Pice | 956 | 4,999 | 9,001 | 22 |
| Leeville | 1,961 | 35,480 | 14,520 | 82 |
| Neale | 733 | 12,259 | 7,741 | 46 |
| Paradis | 3,693 | 30,559 | 44,441 | 78 |
| Pine Prairie, Deep | 1,434 | 12,611 | 12,389 | 68 |
| Port Barre | 1,466 | 19,926 | 13,074 | 75 |
| Quarantine Bay | 3,450 | 29,376 | 40,624 | 56 |
| St. Gabriel | 1,641 | 14,137 | 15,863 | 35 |
| Section 28 Dome | 1,080 | 2,816 | 12,184 | 25 |
| Sulphur Mines | 755 | 23,418 | 11,582 | 69 |
| Tepetate | 828 | 15,888 | 11,112 | 56 |
| Tepetate, North | 876 | 2,384 | 11,616 | 47 |
| Tepetate, West | 2,002 | 8,844 | 16,156 | 42 |
| University | 2,856 | 27,964 | 22,036 | 83 |
| Venice | 4,662 | 28,383 | 41,617 | 70 |
| Ville Platte-Wilcox & Sparta | 1,805 | 40,241 | 19,759 | 227 |
| Vinton & North Flank | 3,734 | 64,061 | 45,939 | 121 |
| Weeks Island (all) | 2,870 | 5,351 | 34,649 | 26 |
| West Bay | 2,272 | 11,620 | 23,380 | 40 |
| West Cote Blanche Bay | 1,879 | 8,395 | 16,605 | 38 |
| Whitecastle | 1,576 | 15,529 | 14,471 | 40 |
| White Lake, East | 1,223 | 8,457 | 6,543 | 23 |
| Other fields | 29,241 | 299,135 | 321,789 | 1,201 |
| Total South Louisiana | 151,626 | 1,559,984 | 1,658,000 | 4,535 |

## PRODUCTION AND RESERVES—MISSISSIPPI

(In thousands of barrels)

| | | | | |
|---|---|---|---|---|
| Baxterville | 2,367 | 16,645 | 58,345 | 129 |
| Brookhaven | 5,291 | 15,932 | 35,068 | 153 |
| Carthage Point | 449 | 2,252 | 7,748 | 9 |
| Cranfield-Tuscaloosa & Wilcox | 6,921 | 24,827 | 95,173 | 76 |
| Eucutta, East & West | 1,913 | 12,102 | 22,898 | 125 |
| Heidelberg | 2,652 | 21,354 | 78,646 | 161 |
| La Grange, So. & Wilcox | 4,550 | 8,421 | 36,579 | 132 |
| Mallalieu | 5,524 | 14,099 | 45,901 | 103 |
| Pickens | 1,104 | 12,349 | 12,641 | 41 |
| Yellow Creek, E. & W. | 915 | 1,736 | 10,264 | 67 |
| Tinsley | 5,560 | 112,594 | 47,406 | 283 |
| Other fields | 1,933 | 4,247 | 12,331 | 161 |
| Total Mississippi | 39,179 | 246,558 | 463,000 | 1,440 |

## PRODUCTION AND RESERVES—ARKANSAS

(In thousands of barrels)

| | | | | |
|---|---|---|---|---|
| Atlanta | 1,051 | 11,831 | 15,169 | 63 |
| Buckner | 732 | 8,186 | 9,814 | 48 |
| Cairo | 623 | 717 | 9,283 | 15 |
| Dorcheat-Macedonia | 869 | 13,064 | 16,936 | 103 |
| Fouke | 953 | 6,458 | 8,542 | 53 |
| Magnolia | 4,165 | 59,282 | 40,718 | 119 |
| McKamie-Patton | 1,154 | 9,538 | 10,462 | 37 |
| Midway | 2,660 | 19,268 | 30,732 | 45 |
| Schuler | 3,074 | 62,150 | 32,850 | 87 |
| Smackover | 3,848 | 422,758 | 57,242 | 1,427 |
| Stephens | 1,557 | 18,985 | 12,015 | 382 |
| Village | 1,836 | 10,339 | 14,661 | 96 |
| Wesson | 3,044 | 8,545 | 16,455 | 146 |
| Miscellaneous | 3,834 | 134,101 | 26,121 | 871 |
| Total Arkansas | 29,420 | 785,222 | 301,000 | 3,492 |

## PRODUCTION AND RESERVES—MICHIGAN

(In thousands of barrels)

| | 1949 production | January 1, 1950 Cumulative | Estimated reserves | No. of wells |
|---|---|---|---|---|
| Beaver Creek | 892 | 1,272 | 2,728 | 64 |
| Coldwater | 1,676 | 8,232 | 9,768 | 75 |
| Deep River | 2,386 | 12,738 | 14,262 | 113 |
| Kawkawlin | 749 | 5,766 | 5,234 | 219 |
| Kimball Lake | 1,110 | 3,587 | 5,413 | 97 |
| Pentwater | 1,313 | 1,705 | 5,295 | 136 |
| Porter-Yost-Jasper | 496 | 44,261 | 5,739 | 272 |
| Reed City | 911 | 36,899 | 7,101 | 169 |
| Stony Lake | 859 | 2,129 | 3,871 | 69 |
| Miscellaneous | 6,075 | 189,605 | 29,589 | 2,441 |
| Total Michigan | 16,447 | 306,194 | 89,000 | 3,655 |

## ROCKY MOUNTAIN AREA

(In thousands of barrels)

### MONTANA

| | 1949 production | January 1, 1950 Cumulative | Estimated reserves | No. of wells |
|---|---|---|---|---|
| Cat Creek | 463 | 17,652 | 4,348 | 172 |
| Cut Bank | 3,657 | 63,846 | 26,154 | 1,116 |
| Elk Basin | 1,939 | 9,864 | 35,136 | 55 |
| Kevin-Sunburst | 1,530 | 53,725 | 21,375 | 1,302 |
| Pondera | 519 | 8,409 | 6,591 | 197 |
| Miscellaneous | 1,157 | 6,985 | 11,396 | 80 |
| Total Montana | 9,265 | 160,481 | 105,000 | 2,922 |

### COLORADO

| | | | | |
|---|---|---|---|---|
| Iles Dome | 519 | 13,026 | 6,974 | 28 |
| Rangely | 19,549 | 56,662 | 228,338 | 531 |
| Wilson Creek | 2,562 | 15,865 | 29,135 | 32 |
| Miscellaneous | 776 | 38,123 | 6,553 | 158 |
| Total Colorado | 23,406 | 123,676 | 271,000 | 749 |

### WYOMING

| | | | | |
|---|---|---|---|---|
| Big Muddy | 656 | 31,475 | 5,525 | 197 |
| Big Sand Draw | 2,291 | 7,050 | 17,950 | 10 |
| Byron | 1,362 | 22,475 | 17,525 | 51 |
| Cole Creek | 504 | 4,470 | 7,530 | 34 |
| Crooks Gap | 597 | 3,162 | 7,838 | 9 |
| Elk Basin | 5,166 | 38,951 | 171,049 | 240 |
| Fiddler Creek | 924 | 935 | 6,065 | 68 |
| Frannie | 1,260 | 16,005 | 18,995 | 70 |
| Garland | 1,163 | 13,571 | 21,429 | 77 |
| Gebo | 381 | 2,749 | 7,251 | 28 |
| Grass Creek | 855 | 38,239 | 4,761 | 352 |
| Hamilton Dome | 1,499 | 15,971 | 21,029 | 84 |
| Horse Creek | 693 | 1,055 | 3,945 | 28 |
| La Barge | 402 | 11,424 | 4,576 | 139 |
| Lance Creek | 2,822 | 83,730 | 21,270 | 234 |
| Little Buck Creek | 517 | 1,701 | 3,299 | 21 |
| Little Buffalo Basin | 588 | 3,674 | 8,336 | 23 |
| Lost Soldier | 3,240 | 40,930 | 44,070 | 49 |
| Mush Creek-Skull Creek | 1,694 | 3,167 | 14,833 | 181 |
| Oregon Basin | 1,582 | 47,791 | 42,209 | 187 |
| Rock River | 727 | 27,590 | 8,410 | 55 |
| Salt Creek | 3,899 | 335,467 | 64,533 | 1,790 |
| Silver Tip | 458 | 657 | 3,343 | 17 |
| Steamboat Butte | 2,243 | 12,426 | 12,574 | 29 |
| Wertz | 1,827 | 18,185 | 16,815 | 26 |
| Winkleman Dome | 471 | 2,502 | 7,498 | 9 |
| Worland | 3,133 | 5,022 | 19,978 | 25 |
| Miscellaneous | 6,513 | 63,633 | 122,364 | 903 |
| Total Wyoming | 47,467 | 853,502 | 705,000 | 4,936 |

## PRODUCTION AND RESERVES—CALIFORNIA

(In thousands of barrels)

### COASTAL DISTRICT

| | | | | |
|---|---|---|---|---|
| Aliso Canyon | 1,273 | 10,272 | 17,728 | 48 |
| Bardsdale | 600 | 3,276 | 6,724 | 76 |
| Capitan | 748 | 13,577 | 11,423 | 69 |
| Cat Canyon, West | 5,071 | 41,346 | 61,654 | 139 |
| Del Valle | 3,275 | 17,915 | 23,085 | 149 |
| Elwood | 2,681 | 85,689 | 34,311 | 69 |
| Gato Ridge | 1,143 | 16,625 | 11,375 | 42 |
| Newhall-Potrero | 3,205 | 19,884 | 25,116 | 72 |
| Oak Canyon | 622 | 4,258 | 7,742 | 20 |
| Orcutt | 1,572 | 108,970 | 20,030 | 261 |
| Padre Canyon | 2,466 | 10,370 | 24,630 | 66 |
| Placerita-Newhall | 4,906 | 4,969 | 7,031 | 192 |
| Rincon | 1,261 | 24,886 | 21,114 | 107 |
| San Miguelito | 2,362 | 20,488 | 34,512 | 61 |

**EARLY ROTARY RIG** ▾▾▾ With Spindletop in 1901, the rotary rig came to stay. Even the rough and ready equipment illustrated above enabled operators to drill at a speed previously unattainable. Baroid is proud of the part that it has played in making rotary drilling the efficient method that it is today.

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*National Lead Company*
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# 20,810 hours without a major overhaul...



Spike Fagans, Drilling Superintendent for W. D. Kelley says of his Murphy Diesels, *"Have had exceptionally good service out of our Murphy Diesels and still are. When we buy a new rig it also will be powered by Murphy Diesels. In oil field language, it is a hell of a good engine. When total costs are considered, I do not believe they can be beat."*

The two Murphy Diesels referred to above by Spike Fagans have drilled 61 wells with a total footage of 188,110'. Each engine has operated for 20,810 hours without a major overhaul. All the drilling has taken place in the panhandle country around Pampa and Borger, Texas.

Wherever they are used in the oil fields, Murphy Diesels are piling up impressive records for dependability and economy. Their rugged, heavy-duty construction enables them to make more hole faster, at lower cost with less down time.

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**MURPHY DIESEL COMPANY**
5305 West Burnham St., Milwaukee 14, Wisconsin
FACTORY BRANCH — *Sales, Parts and Service:*
113-117 South Elwood Street, Tulsa, Oklahoma

**for a pair of MURPHY DIESELS on W. D. Kelley's rig near Pampa**

**MURPHY DIESEL**

*Heavy duty power*

**for the oilfields**

Murphy Diesel Engines and Power Units for drilling and pipeline pumping, 90 to 220 H P. Diesel-Electric generating Sets 60 to 133 K. W.

**CALIFORNIA (Continued)**

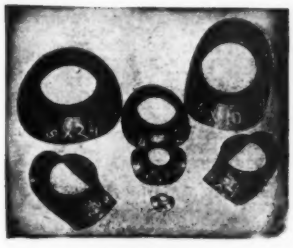
| | 1949 production | January 1, 1950 Cumulative | Estimated reserves | No. of wells |
|---|---|---|---|---|
| Santa Maria Valley | 5,693 | 97,212 | 87,788 | 430 |
| South Mountain | 2,481 | 32,583 | 37,417 | 194 |
| Ventura Avenue | 21,133 | 376,787 | 193,213 | 678 |
| Miscellaneous | 4,875 | 96,559 | 30,107 | 501 |
| Total Coastal Dist. | 65,367 | 985,666 | 655,000 | 3,174 |
| **SAN JOAQUIN VALLEY** | | | | |
| Antelope Hills | 370 | 4,086 | 5,914 | 26 |
| Belgian Anticline | 552 | 1,110 | 3,890 | 14 |
| Belridge, North | 1,233 | 58,835 | 21,165 | 61 |
| Belridge, South | 1,868 | 46,194 | 34,906 | 335 |
| Buena Vista | 13,962 | 377,976 | 142,024 | 912 |
| Canal | 696 | 14,779 | 16,221 | 30 |
| Coalinga, Eastside | 5,616 | 271,272 | 68,728 | 526 |
| Coalinga, Northeast | 2,399 | 31,406 | 38,594 | 43 |
| Coalinga, Nose | 17,153 | 152,158 | 217,842 | 121 |
| Coalinga, Westside | 1,944 | 165,382 | 26,618 | 570 |
| Coles Levee, North | 6,264 | 49,202 | 65,798 | 115 |
| Cales Levee, South | 2,246 | 15,928 | 29,072 | 37 |
| Cymric | 3,239 | 20,401 | 57,599 | 185 |
| Edison | 4,147 | 31,121 | 37,879 | 307 |
| Elk Hills | 2,921 | 202,139 | 272,861 | 160 |
| Fruitvale | 2,712 | 45,467 | 21,533 | 201 |
| Gosford, East | 385 | 491 | 2,509 | 13 |
| Greeley | 4,757 | 42,188 | 37,812 | 92 |
| Guijarral Hills | 2,870 | 3,760 | 43,240 | 52 |
| Helm | 987 | 7,351 | 9,649 | 50 |
| Jacalitos | 2,325 | 9,569 | 10,431 | 108 |
| Kern Bluff | 874 | 1,343 | 8,657 | 109 |
| Kern Front | 2,542 | 71,272 | 35,728 | 539 |
| Kern River | 3,598 | 305,935 | 47,065 | 2,012 |
| Kettleman North Dome | 11,740 | 361,948 | 103,052 | 313 |
| Lanare | 336 | 2,608 | 2,392 | 24 |
| Lost Hills | 2,416 | 64,956 | 18,044 | 552 |
| McKittrick | 576 | 96,039 | 10,961 | 86 |
| McKittrick Front | 354 | 6,730 | 6,270 | 40 |
| Midway-Sunset | 12,749 | 748,775 | 146,225 | 2,460 |
| Mount Poso | 3,285 | 89,206 | 34,794 | 336 |
| Mount Poso, North | 422 | 7,597 | 4,403 | 85 |
| Mountain View | 1,186 | 51,608 | 12,392 | 164 |
| Paloma | 6,108 | 25,165 | 80,835 | 70 |
| Pleasant Valley | 1,990 | 8,613 | 11,387 | 24 |
| Premier | 563 | 12,538 | 11,462 | 190 |
| Race Track Hill | 694 | 2,904 | 5,096 | 36 |
| Raisin City | 1,370 | 7,254 | 6,746 | 63 |
| Rio Bravo | 3,962 | 51,303 | 48,697 | 90 |
| Riverdale | 981 | 8,945 | 11,055 | 49 |
| Round Mountain | 1,465 | 38,432 | 21,568 | 191 |
| Russell Ranch | 6,885 | 7,727 | 72,273 | 130 |
| Salt Creek | 1,543 | 6,411 | 15,589 | 45 |
| Sharktooth | 374 | 2,187 | 7,813 | 55 |
| South Cuyama | 1,094 | 1,094 | 138,906 | 47 |
| Tejon Ranch | 870 | 4,012 | 10,988 | 82 |
| Ten Section | 2,377 | 46,471 | 35,529 | 124 |
| Miscellaneous | 3,530 | 52,150 | 31,788 | 573 |
| Total San Joaquin | 152,530 | 3,635,038 | 2,104,000 | 12,447 |
| **LOS ANGELES BASIN** | | | | |
| Brea-Olinda | 5,277 | 203,291 | 53,709 | 425 |
| Coyote, East | 1,666 | 58,445 | 18,555 | 177 |
| Coyote, West | 4,819 | 164,857 | 72,143 | 278 |
| Dominguez | 4,752 | 182,865 | 68,135 | 355 |
| East Los Angeles | 452 | 1,459 | 7,541 | 13 |
| Huntington Beach | 21,116 | 438,269 | 178,731 | 1,210 |
| Inglewood | 5,101 | 169,994 | 44,006 | 372 |
| Long Beach | 8,356 | 743,040 | 81,960 | 1,141 |
| Montebello | 2,359 | 153,345 | 23,655 | 335 |
| Newport | 2,298 | 11,445 | 38,555 | 186 |
| Playa del Rey | 627 | 54,432 | 5,568 | 114 |
| Potrero | 455 | 7,234 | 3,766 | 38 |
| Richfield | 2,354 | 111,973 | 20,027 | 327 |
| Rosecrans-Athens | 2,256 | 64,870 | 18,130 | 211 |
| Santa Fe Springs | 5,340 | 528,226 | 61,774 | 530 |
| Seal Beach | 4,390 | 118,248 | 39,752 | 198 |
| Torrance | 2,792 | 128,177 | 26,823 | 755 |
| Wilmington | 43,655 | 460,880 | 409,120 | 2,019 |
| Miscellaneous | 1,601 | 111,889 | 14,850 | 289 |
| Total Los Angeles | 119,666 | 3,712,939 | 1,186,000 | 8,973 |
| Total California | 337,563 | 8,343,643 | 3,945,000 | 24,594 |


# HENRY H. PARIS DISTRIBUTOR Inc.

**Manufacturer's Agent - Oil Well and Refinery Supplies**

P. O. BOX 932 — 1125 ROTHWELL ST.

HOUSTON, TEXAS



**FLEETLINE**
***Forged Steel Welding***
**PIPE SADDLES**

Fleetline saddles fit the contour of the pipe . . . have correct wall thickness. They weld neatly into place with much less time and welding rod. Fleetline Saddles are made from welding grade, seamless steel of proper chemical and physical analyses. They do a better, safer, more permanent job at less cost.

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**W. C. NORRIS MANUFACTURER, INC.**
**Tulsa, Oklahoma**
Quality Pumping Equipment, Swage Nipples, Bull Plugs, Welding Fittings, etc.

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**Wheeling, West Virginia**
XL Steel Pipe Couplings for OIL COUNTRY TUBULAR PRODUCTS. Gas-Water-Steam.

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OIC VALVES, Bronze, Iron and Steel, for all purposes. "Oh! I see Lower Costs with OIC."

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Seamless Welding Fittings.

**WESTERN SAFETY BARREL STAND**

**90 Deg.**
**DRESSER ELLS**

Made by an exclusive process from seamless steel pressure tubing, meeting ASTM A-234 standards. Dresser Ells are cold formed to assure optimum physical properties of the metal. Center-to-face dimensions held to one and one-half times the nominal size. Minimum wall not less than thickness of specified pipe. Straight tangent on both ends means. 1) Weld removed from plane of greatest stress, 2) Straight bead welding permitted, 3) Pipe alignment simplified.

# Field Name, County, Location, and Initial Production of Discovery Wells

## SOUTHWEST TEXAS

### District 1

#### NEW POOLS

**BIGFOOT.**—Frio, January; Shell Oil Co. 1-A Travis W. Bain, John Bruggeman Survey 133, TD 3,280 ft., Navarro sand, 3,211-80 ft., IP 8 bbl. gravity 44°.

**BYERSVILLE, SOUTHWEST.**—Williamson, June; Anderson-Prichard Oil Corp. 1 Charlie Preusse, R. E. Booth Survey, TD 1,138 ft., sand, 1,109-38 ft., IP 145 bbl., 38.4° gravity.

**DIVOT.**—Frio, June; M. L. Massingill et al 1 Rex Shuptrine, N. Nanez Survey 1,078, TD 6,705 ft., Austin chalk, 5,584-6,705 ft., IP 188 bbl., 33° gravity.

**DOERING.**—Frio, January; Humble Oil & Refining Co. 1 Frank Doering, Oscar Crawford Survey 10, TD 6,645 ft., sand, 5,399-5,776 ft., IP 73 bbl., gravity 26°.

**GREEN FRANKLIN.**—McMullen, September; Rowan & Hope and M. L. Massingill 1 H. M. Roark, J. M. Hernandez Survey 34, A-225, TD 5,792 ft., Wilcox, 5,090-5,110 ft., IP 61 bbl., 38° gravity.

**JAYEDDIE.**—Guadalupe, August; R. L. Turner and Sam Maceo 1 August G. Bode, J. W. Williams League, TD 2,085 ft., Austin chalk, 2,015-2,105 ft., IP 226 bbl., 29° gravity.

**LANE.**—Caldwell, April; R. V. Muckelroy 1 Dave and Joseph, Byrd Lockhart Survey, TD 1,637 ft., Austin chalk, 1,596-1,637 ft., IP 61 bbl., gravity 41°.

**LUND.**—Travis, March; Anderson-Prichard Oil Corp. 1 G. E. Johnson, Pedro Rodriguez Survey, TD 1,009 ft., IP 40 bbl., 34° gravity, sand, 982-96 ft.

**MARSHAD.**—Bastrop, August; Jesse I. White 1 Martin McDonald, M. Baker Survey, TD 1,881 ft., sand, 1,869-81 ft., IP 112 bbl., 40° gravity.

**NORTH LOCKHART.**—Caldwell, January; Wiegand Bros. 1 Pat King, Sampson Connell Survey, A-63, Austin chalk, 1,453-1,585 ft., TD 1,585 ft., IP 8 bbl., gravity 28°.

**STAPLES.**—Caldwell, August; Fred J. Adams 1 Mrs. Fred J. Adams, S. B. Morrison League, TD 704 ft., sand, 671-704 ft., IP 23 bbl., 36° gravity.

**WINTERGARDEN.**—Dimmit, March; Continental Oil Co. 1 Ewell McKnight et al, Mills M. Battles Survey, 11½, A-22, TD 3,333 ft., sand, 2,555-69 ft., IP 24 bbl., gravity 44.3°.

**WOLF CREEK.**—Guadalupe, April; Parker Petroleum Co. 1 Otto Engelke, Harriett Cottle Survey 14, TD 2,215 ft., Buda, 2,170-2,215 ft., IP 138 bbl., gravity 36°.

**UNNAMED.**—Caldwell, August; Fred J. Adams 1 C. J. Ohlendorf, S. B. Morrison Survey, 2 miles south Martindale, TD 882 ft., sand, 860-82 ft., IP 31 bbl., 30° gravity.

**UNNAMED.**—Caldwell, March; Riddle Oil Co. 1 A. J. Miears, C. M. Cannon Survey, TD 1,980 ft., sand, 1,881-1,924 ft., IP 2 bbl.

**UNNAMED.**—Frio, January; Magnolia Petroleum Co. 1 Ella C. Wolfe, W. P. Wolfe Survey 1144, TD 3,724 ft., Navarro sand, 3,704-24 ft., IP 5 bbl.

**UNNAMED.**—Guadalupe, August; J. M. Turkel 2 J. B. Burns, Samuel Highsmith Survey, TD 2,274 ft., sand 2,225-67 ft., IP 44 bbl., 37° gravity.

#### NEW PAY

**DOERING RANCH.**—Frio, June; Humble Oil & Refining Co. 2 Frank Doering, Account 2, at Doering Ranch, BB&C RR Survey 1,081, Block 15, Leona Valley Farms Subdivision, TD 6,507 ft., Navarro sand, 4,106-13 ft., IP 6,000,000 cu. ft. gas.

## TEXAS GULF

### District 2

#### NEW POOLS

**ALBRECHT - PETTUS.** — Goliad, August; Wood Oil Co. et al. 1 C. C. Ramsey, M de J. Ybarbo Survey, TD 5,325 ft., sand 4,512-14 ft., IP 11,000 M.c.f. gas.

**ANGEL CITY.**—Goliad, November; Stanolind Oil & Gas Co. 1 J. Bluhm, Maria de Jesus Ybarbo Survey, TD 9,015 ft., Slick section of Wilcox, 8,042-50 ft., IP 67 bbl. distillate plus 6,800 M.c.f. gas.

**BREEDEN.**—Goliad, March; Sunray Oil Corp. 1 P. H. Breeden, Joseph Simons Survey, A-253, dual completion, TD 8,210 ft., Yegua sand, 4,644-54 ft., IP 10,800,000 cu. ft. gas plus condensate; Cook Mountain sand, 5,082-94 ft., IP 8,200,000 cu. ft. gas plus condensate.

**EAST CORDELE.**—Jackson, March; P. R. Rutherford and Texos Co. 1 Eugene Cihal, I&GN Survey 5, A-198, TD 5,516 ft., sand, 2,763-68 ft., IP dry gas well.

**EAST FANNIN.** — Goliad, February; Placid Oil Co. 1 Robbie N. Wells, Juan Rener Survey, TD 4,815 ft., Frio, 3,721-29 ft., IP 85 bbl., gravity 25°.

**EAST McFADDIN.**—Victoria, November; Union Producing Co. et al A-10 McFaddin et al, C. O. Edwards Survey, TD 6,415 ft., sand, 5,625-27 ft., IP 120 bbl., 36.1° gravity.

**FORT MERRILL.**—Live Oak, January; James G. McCarrick Tr. 1 Ida A. Richey et al, P. Salinas Survey, A-419, TD 4,775 ft., Pettus, 4,538-44 ft., and 4,546-48 ft., IP 110 bbl., gravity 47°.

**GOEBEL, NORTH.**—Live Oak, June; Henderson Coquat 1 W. W. Goebel and Sophia Goebel, Block 4, Charles R. Tips Subdivision, Willworth Ranch, Slick 6,645-54 ft., and 6,575-86 ft., IP 50 bbl., 43° gravity, TD 7,150 ft.

**GOREE.**—Bee, September; Skelly Oil Co. 1 G. W. Goree, Thomas Barton Survey, A-83, TD 8,201 ft., Luling-Wilcox, 7,199-7,202 ft., IP 61 bbl., 40.4° gravity.

**HALL RANCH.**—Live Oak, May; Caroline Hunt Trust Est. 1 J. S. Hall, BS&F Survey, A-96, TD 5,272 ft., sand 4,318-26 ft., IP 700 M.c.f. gas.

**KARON.**—Live Oak, August; Tide Water Associated Oil Co. 1 George Mauglin, J. Poitevent Survey 37, TD 8,546 ft., sand, 8,180-90 ft., IP 3,817 M.c.f. gas.

**LITTLE KENTUCKY, NORTH.**—Jackson, April; Gulf South Oil Corp., 2 Mauritz Bros., J. A. Pearce Survey, A-300, TD 5,835 ft., Frio sand, 5,678-83 ft., IP 113 bbl., 33.9° gravity.

**MALEY.**—Bee, May; Superior Oil Co. 1 Mrs. Celia Maley et al, AB&M Survey 3, A-79, TD 8,307 ft., Wilcox, 8,100-12 ft., IP 96 bbl. condensate.

**MELBOURN.**—Calhoun, January; Southern Production Co., Inc., 1 W. C. Melbourn, Benito Morales Survey, A-28, TD 10,009 ft., sand, 8,587-97 ft., IP 134 bbl., gravity 45.5°.

**NORTH CHARCO.**—Goliad, January; W. L. Goldston 1 J. R. and A. D. Wilbern, Victor Blanco Grant, TD 9,277 ft., sand, 8,660-72 ft., IP 18,000,000 cu. ft. gas with spray of condensate.

**NORTH HORDS CREEK.**—Goliad, February; Humble Oil & Refining Co. 1 G. T. Powell et al, W. D. Sutherland Survey, TD 9,005 ft., sand, 7,655-65 ft., IP 4,400,000 cu. ft. gas with 57 bbl. condensate.

**NORTH MINOAK.**—Bee, January; Sun Oil Co. 1 Ehlers-Wolters Unit, V. M. Ehlers tract, AB&M Survey, TD 7,696 ft., sand, 7,548-58 ft., IP 1,555,000 cu. ft. gas and 35 bbl. condensate.

**POWDERHORN.** — Calhoun, September; Brazos Oil & Gas Co. 2 Powderhorn Co., Juan Cano Survey, TD 5,150 ft., sand, 4,650-60 ft., IP 23,000 M.c.f. gas.

**PROVIDENT CITY, EAST.**—Lavaca, July; Great Lakes Carbon Corp. et al 1 William Allen, Wm. Bell Survey, A-94, TD 6,157 ft., sand, 6,113-20 ft., IP 103 bbl., 45° gravity.

**RUDMAN.**—Bee, February; Rudco Oil & Gas Co. 1 McFall Kerbey et al, Thomas B. Reese Survey, A-281, TD 7,554 ft., sand, 7,019-25 ft., IP 100 bbl., gravity 27°.

**SASPAMCO.**—Wilson, October; W. R. Quinn et al 3 A. C. Oefinger, Jose de la Garza Survey, TD 2,953 ft., Austin chalk, 2,832-2,953 ft., IP 631 bbl., 24° gravity.

**SCHULTZ.**—Live Oak, June; Argo Oil Corp. 1 Schultz Live Stock Co., John Hefferman Survey, TD 9,500 ft., Wilcox, 8,314-40 ft., IP 9 bbl. condensate, plus 125 M.c.f. gas.

**SECLUSION.**—Lavaca, November; Sterling Oil & Refining Co. 1 Lafey Miller, A. S. White Survey, A-56, TD 6,600 ft., sand, 6,080-90 ft., IP 3,250 M.c.f. gas.

**SPEAKS.**—Lavaca, January; Grubb & Hawkins 1 S. A. Clark, J. H. Clayton Survey, TD 5,833 ft., open hole below surface casing at 1,643 ft., IP 1,246,000 cu. ft. gas.

**SPEAKS, SOUTHWEST.**—Lavaca, May; Hassie Hunt Trust Est. 1 R. L. Smothers, J. Chesler Survey, A-113, IP 14,000 M.c.f. gas, TD 9,330 ft., sand 3,348-60 ft.

**TOM LYNE.**—Live Oak, January; Atlantic Refining Co. 1 T. J. Lyne, Jacob Cook Survey, A-142, TD 10,000 ft., sand, 9,230-60 ft., IP gas well, no gage.

**WEST BOYCE.**—Goliad, January; Hassie Hunt Trust 1 Ollie Webb, Maria de Jesus Ybarbo Grant, dual completion, Slick sand, 7,272-82 ft., IP gas-condensate, no gage; Pettus sand, 4,208-14 ft., IP 113 bbl., gravity 47.3°, TD 7,898 ft.

**WEST MISSION VALLEY.**—Victoria, January; Western Natural Gas Co. 1 M. E. Cooley et al, Benj. J. White Survey, A-354, TD 9,082 ft., Wilcox, 8,895-8,925 ft., IP 2,500,000 cu. ft. gas.

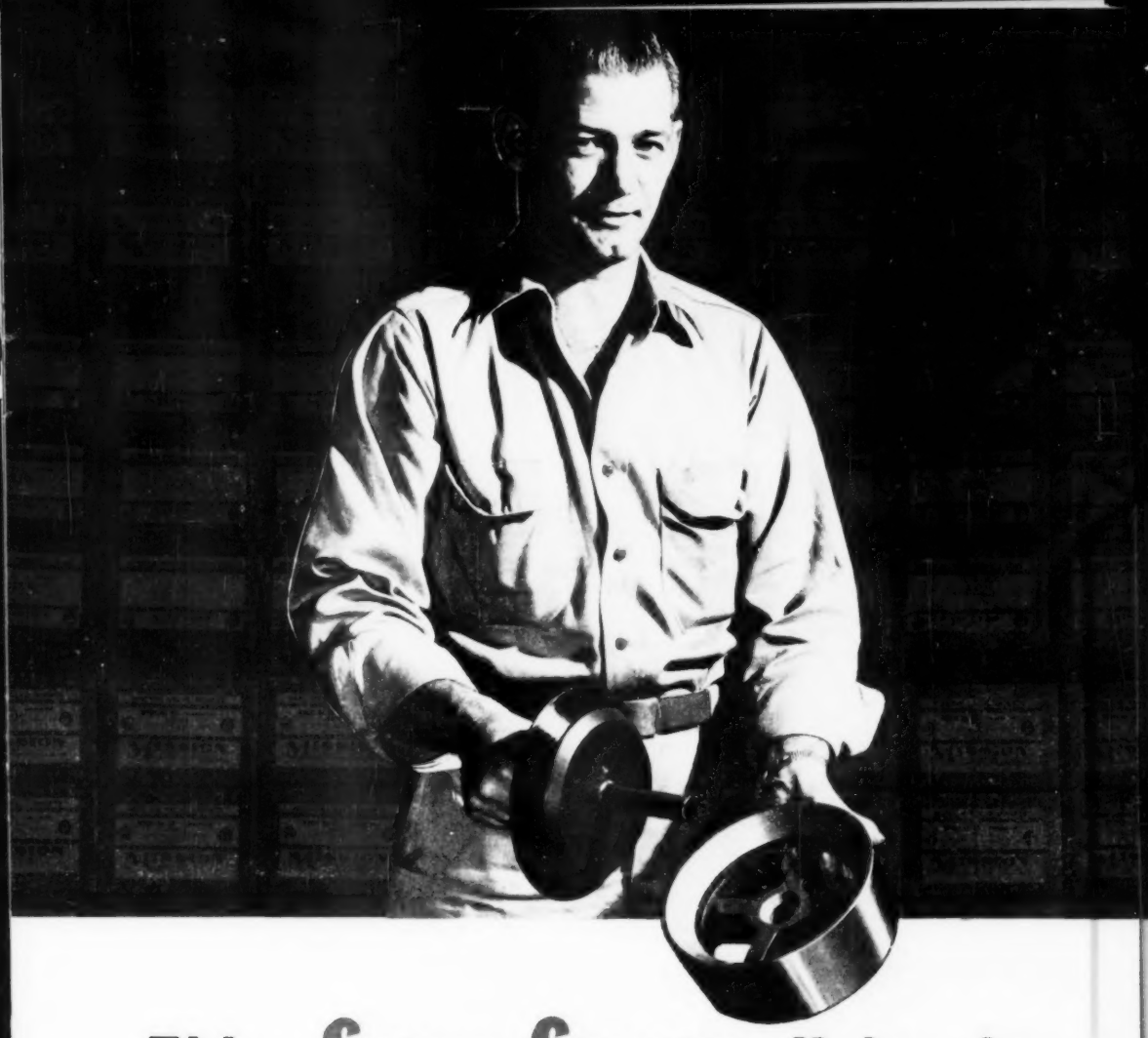
**WEST SARCO CREEK.**—Goliad, January; Ginther, Warren & Ginther 1 Sallie Flowers, Andrew Devereux Survey, TD 5,183 ft., sand, 4,240-54 ft., IP 51,000,000 cu. ft. gas.

**UNNAMED.**—Bee, February; Dirks Bros. and Tide Water Associated Oil Co. C-2 C. A. Dugat, James Gray Survey, TD 7,557 ft., Wilcox, 7,530-38 ft., IP 12,500,000 cu. ft. gas.

**UNNAMED.**—Bee, March; P. R. Rutherford 2 Claude E. Heard, Jeremiah Tool Survey, TD 5,138 ft., sand 3,474-90 ft., IP 5,200,000 cu. ft. dry gas.

**UNNAMED.**—Bee, February; Warren Oil Corp. 1 McCurdy-Moss, Maxino Gomez Survey, TD 5,388 ft., sand, 2,518-25 ft., IP 3,000,000 cu. ft. dry gas.

**UNNAMED.** Bee, October; Gaylord H. Chizum 1 Paul Krause, D. C. Bennett Survey, A-341, TD 4,004 ft., sand, 3,758-68 ft., and 3,787-90 ft., IP 115,000,000 cu. ft. gas



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MISSION "Super-Service" Slush Pump Valve, for high-pressure service.

The MISSION "Super-Service" Slush Pump Valve, for *high-pressure* service . . . is all the name implies—a valve of extraordinary strength, efficiency, and durability.

In this valve four deep cross arms give the seat extra strength. Extra-large file-hard striking surfaces minimize wear. Extra-long valve stem guide reduces "wobble," resulting in long insert life. Our famous Compound 308* Insert gives 3 to 10 times the service of ordinary inserts . . . Mission Mfg. Co., Houston, Texas. Export Office: 30 Rockefeller Plaza, New York. European Address: London, England.

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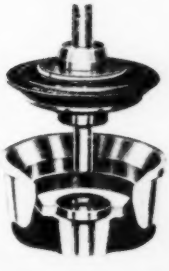
MISSION MANUFACTURING CO.



MISSION "Silver Top" Slush Pump Valve, for general service.

**UNNAMED**—Bee, November; Hewit & Dougherty B-1 K. D. Roche, Timothy Hart Surveys, TD 5,420 ft., sand, 4,236-47 ft., IP 50,000 M.c.f. gas.

**UNNAMED**—Calhoun, October; John W. Mecom 4 Minnie S. Welder, Jose Maria Rios Survey, A-32, TD 8,203 ft., sand, 5,898-5,906 ft., IP 131 bbl., 33° gravity.

**UNNAMED**—Calhoun, December; John W. Mecom 3 Minnie S. Welder, SA&MGRR Survey 3, TD 9,105 ft., sand, 5,750-55 ft., IP gas, no gage.

**UNNAMED**—Calhoun, January; Quintana Petroleum Corp. 1 Louise Kubatt et al, Y. Benavidas Grant, TD 9,310 ft., sand, 8,767-91 ft., IP 29,000,000 cu. ft. gas.

**UNNAMED**—Goliad, February; Fidelity Oil & Royalty Co. 1 Richard Kornfuehrer et ux, A. Gibson Survey, A-134, TD 7,401 ft., sand 7,330-50 ft., IP gas-condensate, no gage.

**UNNAMED**—Jackson, August; Houston Oil Co. of Texas A-1 B. W. Trull, Pat Green Survey, A-25, TD 10,514 ft., sand, 7,947-53 ft., IP 61 bbl., 41.4° gravity.

**UNNAMED**—Lavaca, February; Houston Oil Well Service Co. 1 R. D. Ragsdale, James Ryan Survey, A-42, TD 8,519 ft., sand, 8,432-53 ft., IP gas well, no gage.

**UNNAMED**—Live Oak, October; Magnolia Petroleum Co. 1 Block 76 Unit, Mrs. Sarah Ameson Survey 409, massive Wilcox, 6,955-60 ft., TD 7,004 ft., IP 43,500 M.c.f. gas.

**UNNAMED**—Live Oak, May; Magnolia Petroleum Co. et al 1 Block 85 Unit, Block 85, Dr. C. F. Simmons Subdivision, TD 8,524 ft., sand, 7,845-79 ft., IP 4,603 M.c.f. gas, plus 35.52 bbl. condensate.

**UNNAMED**—Live Oak, December; Western Natural Gas Co. 1 Block 77 Unit, R. W. Fant Survey 18, TD 7,063 ft., Wilcox, 6,852-60 ft., IP 72 bbl. condensate.

**UNNAMED**—Refugio, September; Union Producing Co. A-1 O'Brien, T. J. O'Connor tract, TD 5,880 ft., sand, 5,826-30 ft., IP 11,500 M.c.f. gas.

**UNNAMED**—Victoria, February; Jergins Oil Co. 1-2 Katie Willemin, Pedro Gallardo Grant, TD 5,186 ft., sand, 4,522-25 ft., IP 724,000 cu. ft. gas.

### NEW PAYS

**CABEZA CREEK, SOUTH**—Goliad, November; Continental Oil Co. 3 Elmo Reed, Geo. Elliot Survey, A-119, TD 8,371 ft., sand, 4,780-87 ft., IP 48 bbl., 44.8° gravity.

**CLAYTON-OUTPOST**—Live Oak County, June; Western Natural Gas Co. 1 C. S. Herring et al., D. R. Fant Survey 248, TD 7,020 ft., Slick 6,490-99 ft., IP 60,000 M.c.f. gas.

**COLETTO CREEK**—Victoria, March; Fidelity Oil & Royalty Co. 3 William Dietzel, R. Manchola Survey, TD 4,912 ft., Frio 4,332-37 ft., IP 145 bbl., gravity 24.3°.

**FORT MERRILL**—Live Oak, March; James G. McGarrick, Tr. 3 Ida A. Richey et al, P. Salinas Survey, dual completion: lower Pettus 3,830-48 ft., IP gas well, no gage, TD 4,620 ft.; sand 4,562-76 ft., IP 66 bbl., gravity 47°.

**MARSHALL**—Goliad, June; Sunray Oil Corp. 1 J. B. Danforth, Solomon Griffin Survey, A-126, dual completion, TD 9,502 ft., Yegua 4,910-24 ft., and Massive Wilcox 9,233-82 ft., IP 2,300 M.c.f. gas.

**MISSION VALLEY**—Victoria, May; Western Natural Gas Co. 1 O. W. Schaefer, W. J. Eaton Survey, A-164, IP 82 bbl. condensate, TD 8,713 ft., sand 8,585-614 ft.

**PLACEDO**—Victoria, September; Barnsdall Oil Co. 1 Emil Kruppa, Wm. Rupley Survey, A-290, TD 6,066 ft., sand 5,696-700 ft., IP 164 bbl., 28° gravity.

**ROCHE**—Refugio, June; Hewit & Dougherty A-42 K. D. Roche, D. J. Mitchell Survey, A-215, IP 6,000 M.c.f. gas, TD 7,065 ft., sand 6,132-40 ft.

**ROOKE**—Refugio, June; Hewit & Dougherty D-2 F. B. Rooke & Sons, J. M. Aldrete Grant, IP 22,200 M.c.f. gas, TD 7,417 ft., sand 6,339-47 ft.

**SHERIFF**—Calhoun, March; Quintana Petroleum Co. 7 C. H. Boyd, Bonifacio Rodriguez Grant, TD 10,550 ft., sand 9,018-42 ft., IP 187 bbl., gravity 49°.

**SPEAKS**—Lavaca, June; Grubb & Hawkins 1 E. P. Zock Trustee et al., IP gas, no gage, sand 1,780-92 ft., TD 2,149 ft.

**TERRELL POINT**—Goliad, March; Gasoline Production Corp. & Pan American Production Co. 4 Etta Terrell, Geo. McKnight Survey, TD 5,015 ft., sand 4,679-85 ft., IP 82 bbl., gravity 26°.

**VICTORIA**—Victoria, April; Scurlock Oil Co. 1 H. E. Diebel, Victoria 4 League Grant, Block 2, Range 3e, TD 5,011 ft., sand 4,587-98 ft., IP 79 bbl., 27.2° gravity.

**VICTORIA-DEEP**—Victoria, November; Scurlock Oil Co. 1 Meta Buckert, Block 4, R2, East below town tracts, TD 5,315 ft., sand 5,267-74 ft., IP 153 bbl., 40° gravity.

**WEST WEESTACHE**—Goliad, June; W. L. Goldston 1 Elsie Landgrebe, M. J. Carico Survey, A-90, TD 8,150 ft., sand 8,060-75 ft., gas-condensate well, no gage.

## TEXAS GULF COAST

### District 3

### NEW POOLS

**BIG HILL, NORTH**—Jefferson, July; McCarthy Oil & Gas Corp. 1 Rev. C. E. Byrne, T&NO Section 147, TD 10,536 ft., sand 6,108-24 ft., IP 122,000 M.c.f. gas.

**COLLINS LAKE**—Brazoria, July; McCarthy Oil & Gas Corp. 1 R. F. Willy, C. Smith League, TD 12,220 ft., sand 9,182-90 ft., IP 322 bbl., 33.1° gravity, dual completion, sand 9,852-56 ft., flowed gas, no gage.

**CYPRESS**—Harris, August; Claud B. Hamill and L. M. Josey 1 H. J. Logenbaugh, A. Roberts Survey, A-648, TD 7,075 ft., sand 7,024-36 ft., IP 1,400 M.c.f. gas plus some condensate.

**DECKERS PRAIRIE**—Montgomery, September; Sterling Oil & Refining Co. and Daugherty & Kidd 1 W. Schiel, T. J. Stansbury Survey, A-485, TD 5,675 ft., Cockfield, 5,486-91 ft., IP 10,400 M.c.f. gas.

**EAST BEACH CREEK**—Hardin, March, American Republics Corp. 1 C. M. Votaw Fee, Survey Section 200, A-801, IP 178 bbl. condensate, TD 7,587 ft., sand 6,464-68 ft.

**EAST COPELAND CREEK**—Polk, November; Wesley West & J. M. West, Jr., 1 West Securities Co. and Texas Long Leaf Lumber Co., A Viesca League, A-77, TD 7,550 ft., sand, 3,342-52 ft., IP 35 bbl., 32.3° gravity.

**EAST VILLAGE MILLS**—Hardin County, June; Houston Oil Co. of Texas 1 Nona Fletcher Lumber Co. et al., Geo. Brown Heirs League, A-74, TD 7,495 ft., Yegua, 7,058-66 ft., IP 255 bbl., gravity 41.2°.

**EVERGREEN OUTPOST**—San Jacinto, September; Butcher-Arthur, Inc., 1 Lelah Polk, Vital Flores Survey, A-14, TD 7,714 ft., Wilcox 7,571-81 ft., IP gas discovery, no gage.

**HANNAH REEF**—Galveston, February; Sun Oil Co. 1 State, Section 232, Galveston Bay, TD 11,009 ft., sand 10,674-688 ft., IP 2,863,000 cu. ft. gas and 215 bbl. condensate.

**HARTBURG**—Newton, January; Texas Gulf Producing Co. and Rowan Drilling Co. 1 Morgan et al., in W. B. Ellis Survey, TD 8,013 ft., lower Frio 7,556-60 ft., IP 198 bbl., gravity 42.6°.

**HICKSBAUGH**—Tyler, May; Humble Oil & Refining Co. B-1 William Rice Institute, T&NO 5 Survey, A-646, sand, 8,480-84 ft., TD 10,500 ft., IP 51 bbl., gravity 39.6°.

**HILLEBRANDT, SOUTH**—Jefferson, October; Sun Oil Co. 1 L. A. Barnes, N. H. Grimes Survey, TD 8,500 ft., sand, 8,438-44 ft., IP 229 bbl., 42.4° gravity.

**KENNELLY**—Colorado, November; The Chicago Corp. 1 John Drlik, Sam Kennelly Survey, sand, 6,796-6,800 ft., TD 10,080 ft., IP 3,500 M.c.f. gas plus 60 bbl. distillate.

**LICK BRANCH**—San Jacinto, August; Floyd L. Karsten 1 Quinn-Bevil, B. B. Sturgess Survey, A-277, TD 8,626 ft., sand, 8,614-24 ft., IP 155 bbl., 40.5° gravity.

**MACH**—Wharton, March; Lloyd H. Smith and McKay Donkin 1 Kate Pougher, Mark Weiss Survey, Section 26, A-561, first oil production (southwest of 1 Mach, gas-condensate discovery), TD 6,822 ft., sand, 6,394-98 ft., IP 117 bbl., gravity 37.9°.

**MAYES, EAST**—Chambers, June; Humble Oil & Refining Co. 12 M. E. Mayes, Solomon Brill Survey, A-55, TD 9,500 ft., sand 8,794-800 ft., IP 8 bbl. distillate, plus 82 M.c.f. gas.

**MORGAN'S CREEK**—Polk, January; Carleton D. Speed, Jr., et al., 2 C. C. Perkins et al., Isaac Parker Survey, TD 3,335 ft., Jackson, 3,305-24 ft., IP 135 bbl., gravity 29°.

**NEW TAITON**—Wharton, May; Federal Royalty Co. & R. A. Welch 3 Myra S. Pryor, Wm. Robinson Survey, A-55, TD 10,834 ft., Wilcox 10,280-834 ft., IP 2,500 M.c.f. gas and 70 bbl. condensate.

**NORTH OYSTER BAYOU**—Chambers, March; Sun Oil Co. A-1 Middleton, Section 81, E. Moss Survey, TD 9,707 ft., lower Frio, 9,207-10 ft., IP 1,707,000 cu. ft. gas and 24 bbl. condensate.

**OLD SALEM**—Newton, February; Texas Co. 1 Newton County Lumber Co., NCT-1, Jonathan D. Ray Survey, TD 12,610 ft., Wilcox, 9,644-60 ft., IP 44 bbl., gravity 44.2°.

**PEACH POINT**—Brazoria, April; Gulf Oil Corp. 1 S. S. Perry et al., S. F. Austin 7½ League, Abstract 20, TD 12,984 ft., lower Frio, 11,278-11,348 ft., IP 24 bbl. condensate per day and 4,255,400 cu. ft. gas.

**PRASIFKA**—Wharton, July; C. C. Gilger 1 J. W. Prasifka, GWT&P Survey, A-625, TD 5,621 ft., sand, 5,548-54 ft., IP 175 bbl., 24.9° gravity.

**REITZ**—Wharton, May; R. J. Caraway 1 E. A. Weinheimer, Frank Paige Survey, TD 5,405 ft., basal Frio, 5,219-24 ft., IP 4,078 M.c.f. gas.

**SARGENT**—Matagorda, March; H. A. Potter 3 Hy. T. Freeman, Thos. McCoy and D. Dickro Survey, TD 6,610 ft., sand, 6,324-29 ft., IP 15 bbl., 34.5° gravity.

**SOUTH ALDINE**—Harris, January; F. M. Corzelius 1 H. H. Rath, Wm. Sevey Survey, TD 7,800 ft., sand, 7,089-94 ft., IP 15 bbl., gravity 38.6°.

**WEST CONROE**—Montgomery, February; Housh & Thompson 1 Edmund B. Clary, Est., TD 4,739 ft., sand, 4,616-21 ft., IP 49 bbl. (old gas well reworked).

**WHARTON**—Wharton, July; Texas Co. 1 Mrs. Louise Hutchins, et al., James Tumlinson Survey, TD 6,350 ft., sand, 4,666-73 ft., gas well, no gage.

**WHARTON, WEST**—Wharton, May; Gulf Oil Corp. 1 J. H. H. Dennis, Robert Kuykendall League, A-39, TD 5,376 ft., sand, 5,300 ft., IP 9,300 M.c.f. gas.

**UNNAMED**—Austin, November; McCarthy Oil & Gas Corp. 1-A Leo Schiller et al., Adam Kuykendall Survey, A-243, dual completion, TD 10,206 ft., sand, 9,048-58 ft., IP 299 bbl., 41.1° gravity; sand, 9,467-85 ft., IP 499 bbl., 39° gravity.

**UNNAMED**—Brazoria, June; Rowan Drilling Co. & Texas Gulf Producing Co. 1 J. H. Blackwell, I&GN Survey 27, Lot 3, A-622, TD 10,865 ft., lower Frio, 10,554-61 ft., IP 500 M.c.f. gas.

**UNNAMED**—Brazoria, January; Hassie Hunt, trustee 1 H. H. Stowe, B. C. Franklin League, A-192, TD 11,030 ft., sand 10,691-97 ft., IP 110 bbl., gravity 53.9°.

**UNNAMED**—Brazoria, January; Texas Co. 1 Continental Oil Co. Fee, E. S. Jones Survey, Damon Mound area, TD 4,100 ft., sand 3,966-74 ft., IP 2,250,000 cu. ft. gas.

**UNNAMED**—Brazoria, August; Freeport Sulphur Co. A-2 Freeport Sulphur Co., Henry Burt Survey, A-151, TD 1,388 ft., IP 55 bbl., sand, 1,360-81 ft., 33.5° gravity.

**UNNAMED**—Galveston, September; Stanolind Oil & Gas Co. 1 State Lease 31700, offshore, TD 11,017 ft., sand 5,964-68 ft., IP 48 bbl. condensate plus 5,122 M.c.f. gas.

**UNNAMED**—Grimes, August; E. G. Goforth et al., 1 E. G. Goforth fee, Wm. Berryman Survey, TD 8,500 ft., Wilcox 7,604-11 ft., IP 25 bbl. condensate plus 1,000 M.c.f. gas.

**UNNAMED**—Jefferson, January; Stanolind Oil & Gas Co. 1 Frank Burrell, J. C. Lawhon Survey, TD 8,726 ft., sand, 8,675-87 ft., IP 2,500,000 cu. ft. gas, no gage on condensate.

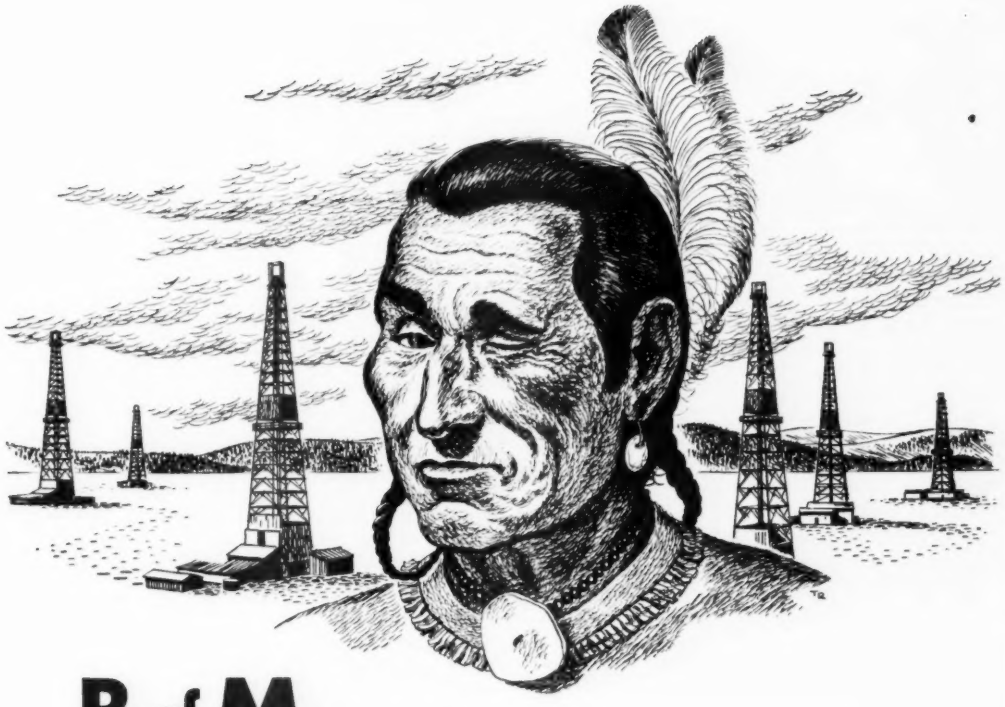
**UNNAMED**—Jefferson, April; H. B. Hebert, C. B. Claypool, J. C. Means, Jr., 1 R. Burrell Heirs, B. Blackman Survey, TD 8,761 ft., Frio, 8,453-58 ft., IP 2,010,00 cu. ft. gas and 82.5 bbl. condensate.

**UNNAMED**—Liberty, July; L. M. Josey et al., 1 A. W. Abshire et al., M. G. White League, TD 8,037 ft., Yegua 6,802-08 ft., IP 188 bbl., 38.6° gravity.

**UNNAMED**—Matagorda County, July; H. A. Potter 4 Henry T. Freeman, Thos. McCoy & D. Deckro Survey, TD 6,600 ft., sand, 6,331-52 ft., IP 72,000 M.c.f. gas.

**UNNAMED**—Matagorda County, August; Grubb & Hawkins 1 Margerum et al., Unit, Lewis Goodwin Survey, A-162, TD 9,308 ft., sand, 9,150-218 ft., IP gas well, no gage.

**UNNAMED**—Montgomery, May; Amerada



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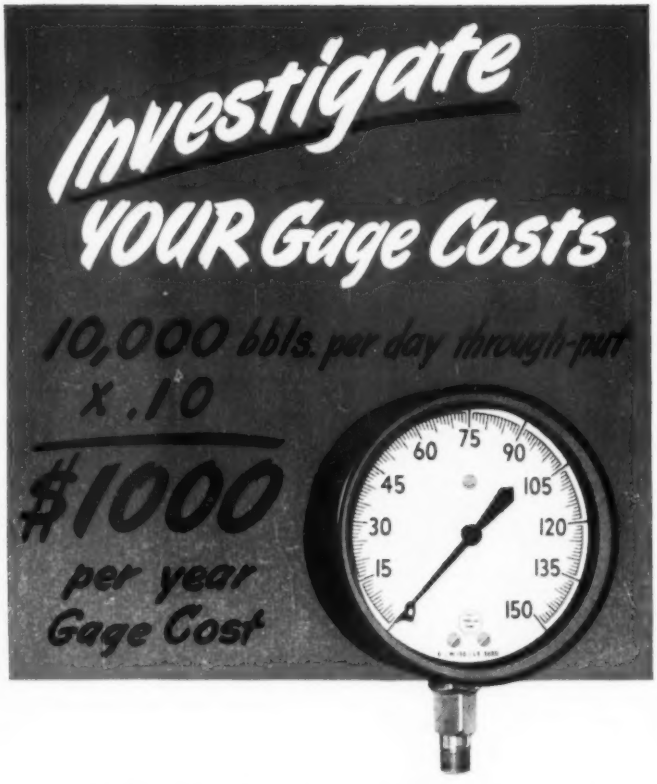


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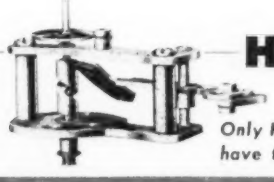

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TRADE MARK


Petroleum Corp. 1 H. A. Godejohn, M. B. Lawrence Survey, A-310, TD 13,691 ft., Cockfield 5,620-28 ft., IP 2,427 M.c.f. gas and 30 bbl. condensate.

**UNNAMED**—Polk, May; Texas Gulf Producing Co. 1 W. A. Crum, A. Viesca League A-77, TD 7,150 ft., sand 7,118-22 ft., IP 171 bbl.

**UNNAMED**—Polk, March; R. H. Abercrombie 1 W. A. Crum, A. Viesca League, TD 7,792 ft., Wilcox 7,116-23 ft., IP 200 bbl., gravity 38.2°.

**UNNAMED**—San Jacinto, March; Butcher-Arthur, Inc., 1 John A. Jones, James Rankin, Jr., Survey, A-40, TD 8,364 ft., Frio 4,492-96 ft., IP 2,171,000 cu. ft. gas.

**UNNAMED**—San Jacinto, March; Floyd L. Karsten 1 E. Malick, S. Lusk Survey, A-196, TD 8,683 ft., sand 8,644-56 ft., IP flowed ungaged gas and condensate.

**UNNAMED**—San Jacinto, July; Butcher-Arthur A-3 Coline Oil Corp., James Rankin Survey, A-40, TD 4,531 ft., Cockfield-Yegua 4,384-88 ft., IP 66 bbl., 42.3° gravity.

**UNNAMED**—Tyler, December; P. T. Sharples 1 D. D. Swearingen, W. R. Parker Survey, Cockfield, 5,696-97 ft., TD 9,371 ft., IP 120 bbl. 46° gravity.

**UNNAMED**—Waller, May; Texas Co. 1 William M. Rice Institute, John M. Stephens Survey, TD 12,561 ft., Wilcox, 10,290-10,304 ft., IP 48 bbl. condensate.

**UNNAMED**—Wharton, July; R. J. Caraway 1 F. E. Appling, William Vess Survey, TD 5,327 ft., sand, 5,243-45 ft., IP 6,000 M.c.f. gas.

**UNNAMED**—Wharton, March; Houston Oil Well Service Co. 1 Nancy D. Corbett, in R. Kuykendall League, TD 4,515 ft., sand 3,003-08 ft., IP gas-condensate, no gage.

### NEW PAYS

**ARCH**—Matagorda, June; Rowan Oil Co. and Texas Gulf Producing Co. B-1 Denmarr Kountze et al., I&GN Section 17, TD 8,721 ft., sand 7,437-38 ft. and 7,645-46 ft., IP 41 bbl. condensate plus 1,402 M.c.f. gas.

**BIG CREEK, SO. FLANK**—Fort Bend, May; Texas Co. C-1 A. P. George, B. Wickson Survey, TD 4,150 ft., sand, 3,720-30 ft., IP 160 bbl.

**BIG CREEK**—Fort Bend, March; Texas Co. 1 Perryman S. Moore et al., Barnabus Wickson Survey, TD 4,322 ft., sand 3,540-46 ft., IP 49 bbl., gravity 29°.

**BUNA**—Jasper, March; Placid Oil Co. 3 J. S. Richardson Heirs, John R. Saulsbury et al., Surveys, TD 7,530 ft., sand 7,424-28 ft., IP 2,500,000 cu. ft. gas and 50 bbl. condensate.

**COPELAND CREEK**—Polk, June; R. H. Abercrombie 1 Texas Long Leaf Lumber Co., A. Viesca League, A-77, TD 7,512 ft., sand 7,054-66 ft., IP 87 bbl. condensate.

**COPELAND CREEK**—Polk, September; A. O. Phillips 1 Roger W. Armitage, Augustine Viesca Survey, TD 3,352 ft., Jackson series, 3,338-44 ft., IP 117 bbl., 27° gravity.

**DANBURY**—Brazoria, October; Humble Oil & Refining Co. 1 S. E. Moller, Hy Austin Survey 5, A-13, sand 8,274-84 ft., TD 10,794 ft., IP 23 bbl.

**EAST HILLISTER**—Tyler, July; Humble Oil & Refining Co. 3 Wm. Rice Institute, A. Hutchins Survey, A-846, TD 4,961 ft., Cockfield 4,946-49 ft., IP 81 bbl., 37.6° gravity.

**EAST HILLISTER**—Tyler, February; Humble Oil & Refining Co. 2 Wm. Rice Institute, Arthur Hutchins Survey A-846, TD 9,538 ft., sand 7,342-50 ft., IP 72 bbl., gravity 46.1°.

**GILLOCK**—Galveston, January; Pan American Production Co. 1 Citizens National Bank of Denison, James Smith Survey, TD 9,147 ft., sand 9,109-16 ft., IP 200 bbl., gravity 37.4°.

**GILLOCK**—Galveston, August; John W. Mecom B-1 Maco Stewart, W. K. Wilson League, TD 8,794 ft., sand 8,766-88 ft., IP 300 bbl., 37.0° gravity.

**GILLOCK, SOUTH**—Galveston, September; Pan American Production Co. 1 Scofield Community, James Smith Survey, A-176, TD 9,660 ft., sand 9,555-60 ft., IP 239 bbl., 37.8° gravity.

**HANKAMER**—Liberty, June; R. Olsen Oil Co. A-1 Ezzell, Levi Barrow Survey, TD 4,292 ft., sand, 4,258-94 ft., IP 431 bbl., 26° gravity.

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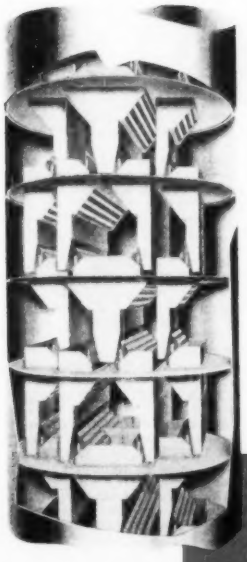

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**HANKAMER**—Liberty, March; McCarthy Oil & Gas Corp. 1 E. W. Boyt, H&TC Survey, Section 22, TD 8,058 ft., Vicksburg, sand, 8,007-21 ft., IP 7,736,000 cu. ft. gas, 26 bbl. condensate.

**HULL**—Liberty, March; Houston Production Co. B-2 Alpha A. Hiemple, T. Trahan Survey, TD 8,027 ft., sand 7,187-7,204 ft., IP 499 bbl., gravity 31.2°.

**HULL (DAISETTA)**—Liberty, December; General Crude Oil Co. 5 Phoenix Development Co., Jesse Devore League, TD 6,600 ft., sand, 5,560-64 ft., IP 90 bbl., 39.5° gravity.

**HULL**—Liberty, November; John W. Mecom D-1 Merchant, H&TC RR Survey 194, sand, 8,170-78 ft., IP 200 bbl., 30.4° gravity.

**HULL, NW FLANK**—Liberty, July; John W. Mecom 1 State of Texas, W. L. Thomas Survey, TD 9,214 ft., sand, 7,676-96 ft., IP 176 bbl., 38.5° gravity.

**HUMBLE**—Harris, October; Traders Oil Co. of Houston 1 Freedom-Valvoline, James Strange Survey, TD 3,774 ft., sand, 3,352-80 ft., IP 170 bbl., 40.8° gravity.

**HUMBLE**—Harris, May; Riley A. Gwynn 1 A. W. Wagner, E. Ruhl Survey, TD 4,517 ft., sand 3,652-60 ft., IP 127 bbl., 41° gravity.

**HUMBLE**—Harris, March; Caroline Hunt Tr. Est. 3 Martha O'Connor, J. Dunman Labor, TD 3,592 ft., Cook Mountain, 3,556-66 ft., IP 81 bbl., gravity 39.6°.

**HUTCHINS**—Wharton, April; McDannald Oil Co. 1 C. T. Zapp, I&GN Section 15, TD 4,560 ft., sand 3,120-33 ft., IP 3,154,000 cu. ft. gas.

**KUBELA**—Wharton, April; The Texas Co. 1 Selma Kainer, I&GN Survey, Section 25, TD 4,725 ft., sand 4,579-85 ft., IP 44 bbl., gravity 24°.

**LIBERTY, SOUTH**—Liberty, September; Cities Service Oil Co. E-4 O'Brien, M. G. White Survey, TD 7,148, Yegua, 5,776-5,810 ft., IP 247 bbl., 41.2° gravity.

**LICK BRANCH**—San Jacinto, October; Floyd L. Karsten 1 M. Boland, A. Masch Survey, A-221, TD 8,612 ft., sand, 8,598-612 ft., IP 208 bbl., 40.6° gravity.

**LISSIE**—Wharton, April; Magnolia Petroleum Co. 1 Louise Mitchell, GH&H Survey, Section 21, TD 9,740 ft., sand 9,660-80 ft., 9,617-42 ft., and 9,582-9,602 ft., IP 2,033,000 cu. ft. gas, and 60 bbl. condensate.

**MANVEL**—Brazoria, June; Jack W. Frazier 1 Campbell-Brendenburgh Unit, E. Little Survey, A-320, TD 5,729 ft., Marginulina 5,612-19 ft., IP 138 bbl., 26° gravity.

**MANVEL**—Brazoria, May; Gulf Oil Corp. 6 E. H. Colby et al., Thomas Spraggins Survey, A-366, TD 5,516 ft., Miocene 4,040-60 ft., IP 125 bbl., gravity 25.3°.

**NASH**—Fort Bend, July; Henshaw Bros. and King & Heyne 2 D. Flessner, T. Alsberry League, Miocene, 3,978-4,005 ft., TD 4,005 ft., IP 172 bbl., 19° gravity.

**NEW ULM**—Austin, May; Sinclair Prairie Oil Co. 1 W. A. Schweke, Tract "A," J. Tylee Survey, A-304, TD 10,013 ft., lower Wilcox, 9,225-35 ft., IP 201 bbl.

**NORTH DAYTON**—Liberty, January; Texas Co. 1 John A. Deering et al., NCT-1, H&TC Section 135, TD 3,168 ft., sand 2,700-10 ft., IP 145 bbl., gravity 39.2°.

**NORTH SKILLERN**—Tyler, May; C. N. Housh 1 J. E. Wheat et al., BBB&C Survey, A-112, TD 7,688 ft., Wilcox 7,640-46 ft., IP 102 bbl., gravity 56°.

**NORTH STOWELL**—Jefferson, May; Texas Co. 2 Koch Santa Fe, F. Valmore League, dual completion, TD 6,850 ft., sands 5,938-40 ft. and 5,444-50 ft., IP 303 bbl.

**PIERCE JUNCTION**—Harris, June; McCarthy Oil & Gas Corp. A-1 Jennie Settegast et al, J. Kopman Survey, A-185, TD 7,300 ft., sand, 7,234-40 ft., IP 172 bbl., gravity 38.9°.

**SARATOGA**—Hardin, June; D. D. Feldman 4 S. F. Bashara, J. B. Reaves Survey, sand, 7,200-35 ft., TD 7,566 ft., IP 138 bbl., 34.5° gravity.

**SARATOGA**—Hardin, March; D. D. Feldman 3 S. F. Bashara, J. B. Reaves Survey, TD 7,501 ft., sand, 7,390-7,485 ft., IP 274 bbl., gravity 34.3°.

**SO. GIST**—Newton, May; Houston Oil Co. of Texas A-1 Newton County Lumber Co., J. Collier Survey, A-55, TD 7,650, sand, 7,326-32 ft., IP 20 bbl. condensate.

**SOUTH LIBERTY**—Liberty, June; L. M. Josey et al., 11 Joseph Mitchell Est., M. G. White Survey, TD 6,800 ft., Cook Mountain, 6,366-438 ft., IP 216 bbl., gravity 38°.

**SOUTH LIBERTY**—Liberty, June; Gulf Oil Corp. A-3 Nonie O'Brien, M. G. White Survey, Yegua 6,374-6,402 ft., TD 7,500 ft., IP 164 bbl., 38.3° gravity.

**SOUTH LIBERTY**—Liberty, February; W. A. Moncrief, 1 A. Duessen, David Minchey League, TD 6,117 ft., sand 6,068-78 ft., IP 138 bbl.

**SOUTH LIBERTY**—Liberty, April; Texas State Drilling Co. 1 Alex. Duessen, D. Minchey League, TD 6,045 ft., sand, 5,644-64 ft., IP 163 bbl., gravity 41.2°.

**WEST COLUMBIA**—Brazoria, November; Texas Co. 37 J. G. Phillips et al., Geo. Tennille League, TD 6,531 ft., sand 6,180-210 ft., IP 181 bbl., 29.7° gravity.

**WEST COLUMBIA**—Liberty, June, Hogg Oil Co. 1-A Mike Hogg et al., M. Varner Survey, sand 6,026-48 ft., TD 7,106 ft., IP 247 bbl., 33.7 gravity.

## SOUTHWEST TEXAS

### District 4

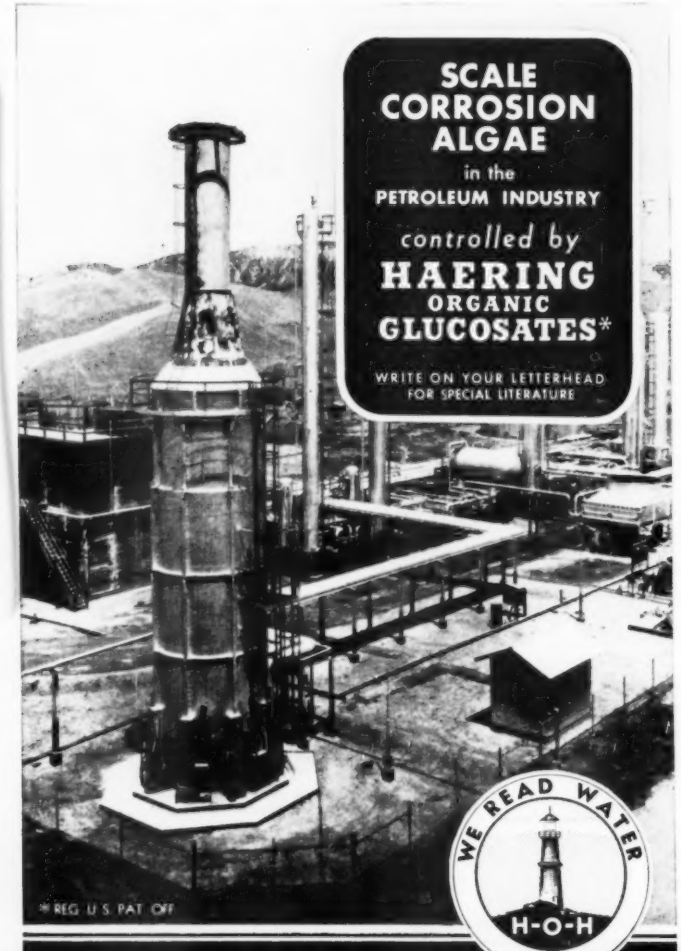
### NEW POOLS

**BLOOMBERG**—Starr, October; Texas Co. 3 Samuel D. Bloomberg et al., Xavier Zamora Porcion 41, A-77, top basal Frio, 4,030 ft., TD 6,849 ft., IP 73,000 M.c.f. gas.

**BUENA VISTA**—Starr, October; Clark Fuel Producing Co. 1 Gervacio Canales, Tract 6, Share 2-B, La Sacatosa Grant, pay 1,761-1,770 ft., TD 1,800 ft., IP 33 bbl. oil per day, gravity 23.7°.

**CANTU**—Duval, April, Texas Co. 1 Canobio Cantu, in Benito Ramos Survey, A-478, TD 5,715 ft., pay 4,674-78 ft., IP 375 M.c.f. gas.

**CEMENT**—Kleberg, November; Henshaw Bros. and O. R. Mitchell 1 J. E. Humble, Section 45, Geo. H. Paul Subdivision of Driscoll Ranch, pay 6,620-28 ft., TD 7,064 ft., IP 36 bbl., 39.5° gravity.

**CINCO DE MAYO**—Zapata, September; W. B. Jayred 1 Jose M. Gutierrez, Porcion 30, Queen City sand 2,300-10 ft., TD 6,515 ft., IP 3,500 M.c.f. gas.

**DASKAM**—Hidalgo, March; Clark Fuel Producing Co. 2 Bemis Daskam et al., Lot 27, Porcion 45, 4,259-62 ft., TD 4,272 ft., IP 4 bbl., 45.2° gravity.

**DINN**—Duval, April; Rodney De Lange 3 J. T. Dinn, in J. Poitevent Survey 454, Cole sand 1,800-11 ft., IP 17 bbl. 19° gravity oil, TD 1,814 ft.

**DOC**—Jim Hogg, June; Coast Co. and Lucky & Neuhaus 1 Mrs. S. K. East, E. Chaparosa area, Pettus sand 3,742-46 ft., TD 3,776 ft., IP 4,000 M.c.f. dry gas.

**DONNA**—Hidalgo, August; Sinclair Prairie Oil Co. 1 Shaffer-Jancik, Block 16, Porcion 72, pay 6,575-6,640 ft., TD 9,215 ft., IP 7,000 M.c.f. gas.

**EDINBURG**—Hidalgo, January; Magnolia Petroleum Co. 1 Carlson Unit, Lot 7, Block 1, A. J. McCall Subdivision, Porcion 68, TD 11,246 ft., lower Frio, 7,580-7,640 ft., IP 15,000,000 cu. ft., gas-condensate ratio 124,000, gravity 53.5°.

**FLOWELLA**—Brooks County, March; Amerada Petroleum Corp. 1 Concepcion Garza Zamora, in Block 5-H, Share 4, H. Brooks Subdivision, in Loma Blanca Grant, A-98, TD 8,610 ft., IP 6,400,000 cu. ft. gas per day on open flow, ratio 28,000, flowed 1,240,000 cu. ft. gas per day through ¼-in. choke, with 44 bbl. condensate per day, gravity 52.7°.

**GARCIA**—Duval, March; M. L. Massingill and American Republics Corp. 1-A Brigidia Garcia et al., in Survey 412, NW San Diego, TD 4,995 ft., in original hole, TD 3,330 ft. in sidetracked hole, pay 3,268-76 ft., IP 1,750,000 cu. ft. gas.

**GREGG WOOD**—Starr, February; D. G. Wood, Sr., 1 Fee, Porcion 84, Frio, 1,315-21 ft., TD 1,321 ft., IP 23 bbl., gravity 22°.

**LAGUNA LARGA**—Kleberg, September; Humble Oil & Refining Co. G-1 King Ranch-East Laureles, Rincon de los Laureles Grant, Frio, 6,497-6,505 ft., TD 12,005 ft., IP 35,000 M.c.f. gas per day plus 280 bbl. condensate.

**LA SAL VIEJA**—Willacy, August; J. S. Abercrombie Co. 1 R. F. Robinson, San Juan de Carricitos Grant, pay 8,329-36 ft., IP 183 bbl., 39.4° gravity.

**LOCKHART, SOUTHEAST**—Starr, July; I. K. Howeth et al., 1 Domingo L. Garza Cookfield 4,034-36 ft., TD 4,063 ft., IP 71 bbl., 45.5° gravity.

**MUD FLATS**—Aransas, November; Geo. W. Graham 1 Margaret E. Davis, Lot 7, Block 48, resubd. of Sixth Addition of Taft Farm Lands, TD 9,269 ft., Rrio 9,251-54 ft., IP 192 bbl. condensate plus 2,440 M.c.f. gas, 52.5° gravity.

**MUSTANG ISLAND**—Nueces, March; Atlantic Refining Co. and Tide Water Associated Oil Co. 1 State Tract 436, in State Tract 436 in Corpus Christi Bay, TD 9,525 ft., pay 7,433-42 ft., IP 17 bbl., gravity 41°.

**NORTH CHILTIPIN**—Duval, April; W. L. Goldston 2 Ed Canales, in SA&MG Survey, A-529, Hockley 4,151-55 ft., TD 4,706 ft., IP 100 bbl.

**NORTH SAN DIEGO**—Duval, June; Humble Oil & Refining Co. 1 Enrique Garcia, in San Diego de Arriba Grant pay 4,730-37 ft., TD 5,004 ft., IP 125 bbl., 48.6° gravity.

**PALO BLANCO**—Brooks, January; Geo. H. Echols 1 Mrs. Donal Alexander, in Las Megueyes de Palo Blanco Grant, TD 3,616 ft., pay 3,607-12 ft., IP 121 bbl., gravity 40.8°.

**RAND MORGAN**—Nueces, October; Rand & Morgan M-1 Fee, Block 3, Richard King Farm Lots, pay 5,392-94 ft., TD 5,425 ft., IP 57 bbl., 47° gravity.

**REALITOS, EAST**—Duval, June; Southern Minerals Corp. 1 Leroy Denman, Santos Garcis Grant, dual completion, upper Cole 4,179-84 ft., TD 5,837 ft., middle Cole 4,253-56 ft., IP 62 bbl., 46.1° gravity.

**RITA**—Kenedy, January; Humble Oil & Refining Co. 1 S. K. East, in Los Pinados Grant, pay 7,076-78 ft., TD 11,282 ft., IP 270 bbl., gravity 43°.

**ROWDEN**—Duval, September; Gasoline Production Corp., Ralph Rowden & Dale H. Rowden 1 John P. Akin-State of Texas, F. E. Stearns Survey 184, Basal Cole, 2,155-63 ft., TD 2,806 ft., IP 60 bbl., 25° gravity.

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**GLASS FIBER STEAM HOSE**

**HEWITT-ROBINS INCORPORATED**

**SANTA FE**—Brooks, January; Humble Oil & Refining Co. 1 Santa Fe Ranch, in San Salvador de Tule Grant, pay 3,237-42 ft., TD 9,005 ft., IP 50 bbl., gravity 32.5°.

**SANTA FE, SOUTH**—Hidalgo, November; Humble Oil & Refining Co. 5 Santa Fe Ranch, San Salvador De Tule Grant, Frio 7,722-28 ft., TD 10,125 ft., IP 73 bbl., 42° gravity.

**SARANOSA, WEST**—Duval, October; Magnolia Petroleum Co. 1 Weil Survey 131, in GC&SF RR Survey 131, Government Wells 2,301-03 ft., TD 2,392 ft., IP 30 bbl., 21.5° gravity.

**SEVEN SISTERS-COCKFIELD**—Duval, July; L. O. Kelsey and Bill Fallis 1 W. H. Sling, BS&F Survey 117, pay 3,038-42 ft., TD 3,233 ft., IP 450 M.c.f. gas.

**TIO AYOLA**—Brooks, January; Humble Oil & Refining Co. 2 Robert J. Kleberg, Jr., Trustee, in Los Muertos pasture, in La Noria de Tio Ayola Grant, pay 1,860-70 ft., TD 7,923 ft., IP 2,200,000 cu. ft. gas.

**VIBORAS**—Brooks, August; Humble Oil & Refining Co. 1 R. J. Kleberg, Jr., Trustee, Viboras pasture, Survey 82, pay 8,123-35 ft., TD 10,382 ft., IP 2,100 M.c.f. gas plus 25 bbl. distillate, 55.6° gravity.

**WEST CEDRO HILL**—Duval, March; Magnolia Petroleum Co. 6 Duval County Ranch Co., Block 10, Survey 196, Duval County School Land, Cole sand 1,413-18 ft., TD 2,503 ft., IP 16,000,000 cu. ft. gas.

**WEST CHARMOUSCA**—Duval, February; J. W. Gorman et al., 1 Worden-Drought, in Juan L. Saen Survey 154, pay 1,832-50 ft., TD 2,231 ft., IP 27,000,000 cu. ft. gas.

**ZARAGOZA**—Duval, June; Edwin B. Cox & Jake L. Hamon & Geo. H. Coates 1 A. Lopez, AB&M Survey 731, A-765, Mirando sand 2,289-93 ft., TD 2,918 ft., IP 1,200 M.c.f.

**UNNAMED**—Brooks, July; Humble Oil & Refining Co. 4 Santa Fe Ranch, San Salvador de Tule Grant, in Santa Fe area, pay 5,896-5,904 ft., TD 8,491 ft., IP 2,850 M.c.f. gas.

**UNNAMED**—Cameron, July; Sidney H. Smith, Jr., 1 O. W. Johnson, pay 7,547-50 ft., TD 7,552 ft., IP 118 bbl., 45° gravity.

**UNNAMED**—Duval, August; J. W. Cosner 1 W. K. Hoffman, Survey 116, pay 2,005-26 ft., TD 2,067 ft., IP 4,000 M.c.f. gas.

**UNNAMED**—Duval, November; Jergins Oil Co. of Texas 1 Albert Martin, Trustee, GC&SF Survey 171, A-861, pay 3,057-68 ft., TD 3,217 ft., IP 93 bbl., 40° gravity.

**UNNAMED**—Duval, July; David Lee Hill, Trustee 1 W. R. Peters Est., W. A. Cavit Survey 38, pay 2,600-10 ft., TD 2,613 ft., IP 670 M.c.f. gas.

**UNNAMED**—Duval, July; Glenn G. Mortimer, Jr., 1 W. R. Peters, AB&M Survey 176, pay 2,474-84 ft., TD 2,671 ft., IP 700 M.c.f. gas.

**UNNAMED**—Duval, December; Ammann-McNab, Ltd., et al., 1 A. Weil Estate, B. Elizondo Survey 568, A-1,838, Chernoske sand 3,790-91 ft., TD 3,860 ft., IP 30 bbl., gravity 32.5.

**UNNAMED**—Duval, December; Cox & Hamon 1 J. Benavides, BS&F Survey 462, pay 3,575-77 ft., TD 3,700 ft., IP 50 bbl., 38.6° gravity.

**UNNAMED**—Duval, May; M. L. Massingill and American Republics Corp. 1 Brigidia Garcia, AB&M Survey 412, Pettus sand 4,630-34 ft., TD 4,883 ft., IP 4 bbl.

**UNNAMED**—Hidalgo, February; Continental Oil Co. 1 A. B. Watson et al., La Lomita Irrigation & Construction Co., subdivision of Porcion 63, pay 6,946-62 ft., TD 8,504 ft., IP 16 bbl., gravity 33.3°.

**UNNAMED**—Hidalgo, March; Sun Oil Co. 1 F. R. Barrera, in San Jose Grant, and El Benadito Grant, TD 6,205 ft., pay 4,630-36 ft., IP 4,800,000 cu. ft. gas.

**UNNAMED**—Hidalgo, October; Sinclair Oil & Gas Co. 1 Thomas Unit, Alamo Land & Sugar Co. subdivision, TD 8,631 ft., pay 6,565-6,610 ft., IP 19,000 M.c.f. gas.

**UNNAMED**—Jim Wells, July; Sinclair Prairie Oil Co. 1 A. H. Henderson, R. P. Haldeman subdivision, pay 5,335-45 ft., TD 6,517 ft., IP 6,000 M.c.f. gas.

**UNNAMED**—Nueces, January; Producers Development Co. A-1 Louie Bailey, in Lot 19, Agua Dulce Farm Lots, Section 36, TD 6,265 ft., pay 5,967-68 ft., IP 47 bbl., gravity 45.4°.

**UNNAMED**—Nueces, April; Shell Oil Co. 1 W. M. Bevly, in Wm. J. Cody Survey, TD 11,000 ft., pay 9,914-48 ft., IP 2,860,000 cu. ft. gas and 140 bbl. condensate, gravity 53.

**UNNAMED**—Nueces, December; Atlantic Refining Co. 1 State Tract 430, pay 6,818-32 ft., TD 7,893 ft., IP 1,730,000 cu. ft. gas.

**UNNAMED**—Nueces, December; Atlantic Refining Co. 1 State Tract 429, in Corpus Christi Bay, pay 7,700-30 ft., TD 7,917 ft., IP 36 bbl. condensate and 3,787,000 cu. ft. gas.

**UNNAMED**—Nueces, August; Producers Development Co. 1 Veronica McCullough, pay 5,538-48 ft., TD 5,594 ft., IP 7.5 bbl., 38° gravity.

**UNNAMED**—San Patricio, May; Quintana Petroleum Corp. 1 J. H. Harvey, Geo. Sargent Survey, pay 9,978-84 ft., TD 13,950 ft., gas well.

**UNNAMED**—Starr, March; Nelson Bunker Hunt Trust Est. 1 B. F. Gonzales et al., in Kelsey-North Sun area, tract 8-A, Share 2, Santa Teresa Grant, pay 4,684-88 ft., TD 6,810 ft., gas-condensate well.

**UNNAMED**—Starr, March; A. & T. Drilling Co. B-1 Paula Salinas de Reynaga, in Porcion 109, pay 1,130-33 ft., TD 1,201 ft., gas well.

**UNNAMED**—Starr, August; Continental Oil Co. B-120, T. B. Slick Estate, A. C. Truitt Survey 266, A-968 pay 6,224-35 ft., TD 8,514 ft., IP 104 bbl., 42.3° gravity.

**UNNAMED**—Starr, October; Continental Oil Co. G-3 T. B. Slick Estate, Survey 541, pay 5,157-62 ft., TD 5,298 ft., IP 34 bbl.

**UNNAMED**—Starr County, October; Baldridge & King, Inc., A-1 State-Slick, Survey 885, TD 6,736 ft., pay 6,339-51 ft., IP 16,800 M.c.f. gas.


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SHORT ENGINE LIFE?
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## NEW PAYS

**ALFRED.**—Jim Wells, May; Morris Cannan 1 O. S. Adams, Wm. Adams Survey 5, TD 5,110 ft., 4,575-81 ft., sand, IP 55 bbl.

**CALALLEN.**—Nueces, June; Bridwell Oil Co. 1 L. I. Reagan, M. Lopez de Herrera Grant, sand 7,246-49 ft., TD 7,800 ft., IP 104 bbl., 37.5° gravity.

**COASTAL.**—Starr, March; Coastal Refineries Inc., and W. D. Kennard 1 Louis Pena, Tract 151, Porcion 38, TD 4,437 ft., pay 4,074-78 ft., IP 22 bbl., gravity 44.6°.

**COPANO BAY.**—Aransas, April; Phillips Petroleum Co. 1 "Aransas" State Tract 35, in Copano Bay, State Tract 35, TD 7,772 ft., pay 7,685-90 ft., IP 165 bbl., gravity 43.6°.

**EAST ALFRED.**—Jim Wells, December; Texas Co. 1 E. M. Brownlee, SPRR Survey 17, A-494, TD 5,700 ft., pay 3,353-58 ft., IP 61 bbl., 24.3° gravity.

**EAST ALTA MESA.**—Brooks, May; L. M. Lockhart 1 Adolfo Garcia, Mesa sand, TD 6,515 ft., IP 106 bbl., pay 6,280-6,300 ft., 45.2° gravity.

**EAST PLYMOUTH.**—San Patricio, April; Texon Royalty Co. 2 W. L. Roots, Lot 4, Section 26, Fourth Addition Taft Farm Lands, TD 5,645 ft., pay 5,129-37 ft., IP 95 bbl., gravity 29.5°.

**EAST WHITE POINT.**—San Patricio, June; Shell Oil Co. 6 J. R. Kirk, George H. Paul subdivision, dual completion, sands, 5,603-24 and 6,766-67 ft., IP 248 bbl., TD 6,818 ft., 43.1° gravity.

**FULTON BEACH.**—Aransas, February; Stanolind Oil & Gas Co. 1 State Tract 82, State Tract 82, Aransas Bay, TD 7,522 ft., pay 7,052-58 ft., IP 45 bbl., gravity 44°.

**GOVERNMENT WELLS (WILCOX).**—Duval, March; Ralph E. Fair, Inc., and Jack Woodward 1 Luptak, J. Poitevent Survey 41, TD 10,506 ft., pay 7,660-7,728 ft., IP 1,950,000 cu. ft. gas per day and 95 bbl. per day condensate.

**HOFFMAN.**—Duval, June; Bridwell Oil Co. and J. W. Gorman 1 Juan Flores et al, G. Mirales Survey 118, A-1,169, TD 2,705 ft., pay 1,938-48 ft., IP 1,500 M.c.f. gas.

**JAY SIMMONS.**—Starr, December; C. G. McCaleb and W. Earl Rowe et al, 1 Jose G. Garcia, Share 4, Subdivision "C," Santa Cruz Grant, TD 6,455 ft., pay 6,451-55 ft., IP 74 bbl., 43.9° gravity, dual completion, pay 6,029-33 ft., IP 91 bbl. oil, 41.3° gravity.

**LA COPITA.**—Starr, April; Rowan & Hope 2 Bentsen Bros., Survey 549, (dual completion) Frio "B" sand, 4,846-54 ft., IP 97 bbl., Frio "C" sand, 4,899-4,903 ft., IP 102 bbl., gravity 45°, TD 4,950 ft.

**LA COPITA.**—Starr, April; Humble Oil & Refining Co. 1 J. J. Howell, CCSD&-RGNG RR Survey 551, TD 7,007 ft., pay 6,798-6,834 ft., IP 47 bbl., 43° gravity.

**LA COPITA.**—Starr, April; Texas Co. 2 Martinez-State, (dual completion), pay 6,563-69 ft., IP 268 bbl., pay 6,735-53 ft., IP 22 bbl., TD 7,208 ft.

**LA REFORMA.**—Hidalgo, July; Baldridge & King, Inc., 1 Josefa Hinojosa, San Jose Grant, TD 8,511 ft., pay 8,430-46 ft., IP 1,200 M.c.f. gas.

**McALLEN.**—Hidalgo, June; Coastal Refineries, Inc., and Mayfair Minerals, Inc., 1 O. H. Pagelson, TD 10,395 ft., Frio sand 9,370-9,410 ft., IP 25,000 M.c.f. gas.

**MARIPOSA.**—Brooks, January; Arkansas Fuel Oil Co. 1 J. F. Dawson, J. F. Dawson Survey 154, A-178, (new pay extension), TD 9,923 ft., pay 7,781-89 ft., IP 19 bbl., gravity 41.7°.

**MERCEDES.**—Hidalgo, February; V. E. Cook, Tr. 1 J. R. Wade et al, Block 57, North Capisallo subdivision, TD 8,806 ft., pay 7,266-75 ft., IP 15 bbl., gravity 43.7°.

**MERCEDES.**—Hidalgo, February; V. E. Cook, Tr. 1 J. C. Royalty Corp., Tract 2345, Block 58, North Capisallo subdivision, dual completion, TD 8,563 ft., pay 6,858-75 ft., IP 5,200,000 cu. ft. gas and 186 bbl. condensate; pay 6,960-80 ft., IP 1,900,000 cu. ft. gas and 53 bbl. condensate.

**MINNIE BOCK.**—Nueces, June; Atlantic Refining Co. 1 W. S. Gandy, J. Lopez de Herrera Survey, G. H. Paul subdivision, TD 7,250 ft., Zone 12 sand, 5,488-94 ft., IP 36 bbl., 18.4° gravity.

**MORGAN.**—San Patricio, July; Arnold O. Morgan-H. M. Reed 1 P. L. Johnson,


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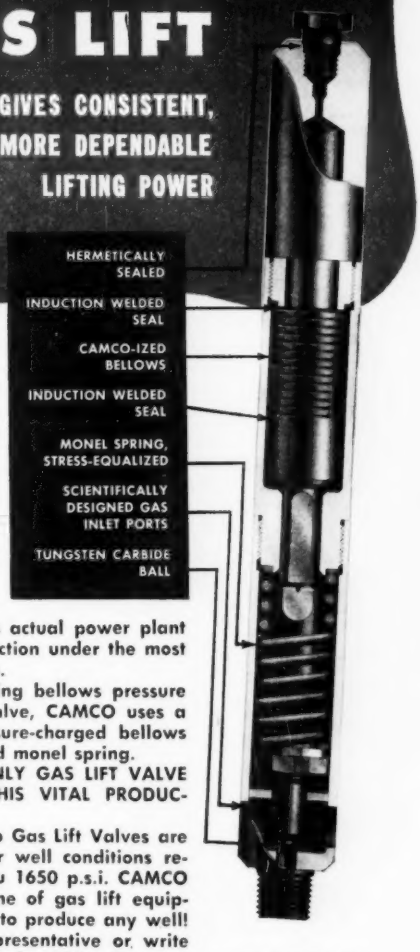


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**CAMCO-IZING preforms the valve bellows with 5,000 lbs. differential pressure. Thus, it tests while it conditions the valve's actual power plant for correct, positive action under the most severe well conditions.**

**And instead of using bellows pressure alone to close the valve, CAMCO uses a combination of pressure-charged bellows and a stress-equalized monel spring.**

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# Dry GAS

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AEROTEC

Aerotec Gas Scrubbers may be used in any application that requires the removal of either dust or liquids from gas.

The large horizontal unit above is used where the primary removal problem is liquid.

The two vertical units shown at the left, more advantageously handle dry dust, but may also be used for the removal of liquids or distillates.

Both types can be built for capacities as high as 100,000,000 SCFD.

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# SCRUBBING

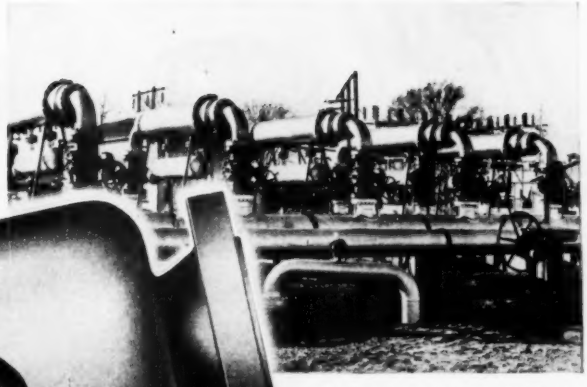

Fig. 1—Five "Big" Aerotec Gas Scrubbers, manifolded to clean 500,000,000 standard cubic feet per day.

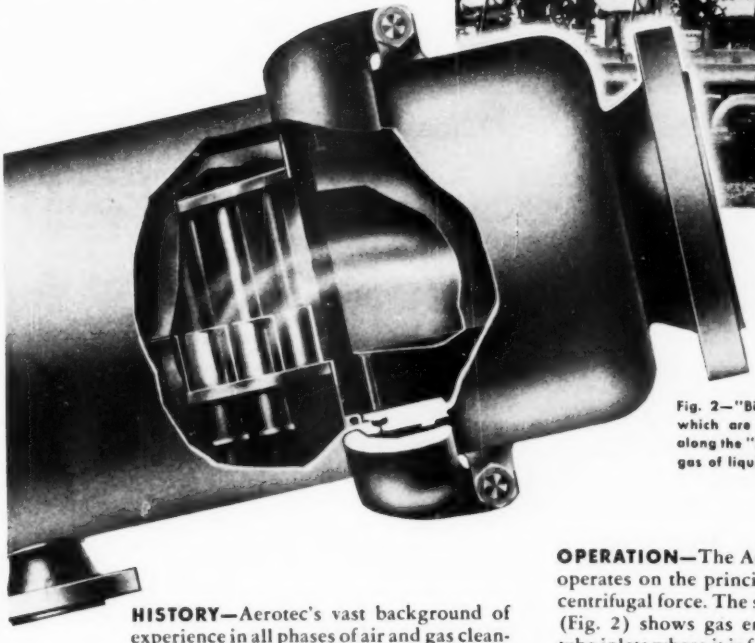

Fig. 2—"Big" Aerotec Unit, many of which are now in use, at stations along the "Big Inch" line, for cleaning gas of liquid and distillates.

**HISTORY**—Aerotec's vast background of experience in all phases of air and gas cleaning for industry, provided the technical knowledge necessary in applying the Aerotec Tube to gas scrubbing.

It was not until 1947, however, that actual installation of a unit was made, and the theory proven to be sound engineering.

Since the first small test installation, units of 100,000,000 standard cubic feet per day have been put into operation and many more are on order. Notable among recent installations are twenty-eight units of 100,000,000 SCFD each for Texas Eastern Transmission Company. On some of these installations, five of these large units have been manifolded to give a total capacity of 500,000,000 SCFD (see Fig. 1 above).

**OPERATION**—The Aerotec Gas Scrubber operates on the principle of separation by centrifugal force. The sectioned illustration (Fig. 2) shows gas entering at right into tube inlets where it is forced into a descending spiral. Near the lower end of tube a vortex is formed and clean gas spirals upward through the smaller tube into plenum chamber, thence through outlet at left. Liquid, distillates and dust continue on spiraling downward and are precipitated through the two nozzles at the bottom of the pressure shell, into a sump tank for ultimate disposal.

This dry process of separation eliminates many of the difficulties normally encountered in conventional oil-bath gas scrubbers.

*Write for NEW Aerotec Bulletin No. 501 giving full details and specifications of the Aerotec Gas Scrubbers.*

*Project and Sales Engineers*

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**SELF-CONTAINED UNIT** . . . rugged construction . . . no extra gadgets protruding or complicated operating parts . . . one of the most efficient, foolproof, easy-to-use fire extinguishers known . . . two convenient sizes, 20 pound capacity and 30 pound capacity.

**C-O-TWO DRY CHEMICAL STAYS FREE FLOWING** . . . no syphon tubes or valves within the cylinder to become clogged or inoperative . . . discharge hose and squeeze type discharge nozzle remain empty until the fire extinguisher is actuated. Inverting the fire extinguisher before using provides mechanical breakage by changing the position of the dry chemical in the cylinder. Bumping to actuate the fire extinguisher provides additional mechanical breakage as well as continuous carbon dioxide gas pressured agitation or fluffing of the dry chemical. These combined features plus a skillfully blended free flowing extinguishing agent assure you of a faster, more effective and complete discharge.

**APPROVED** . . . Underwriters' Laboratories, Inc. rating is B-1, C-1. C-O-TWO Dry Chemical is non-conducting, non-corrosive, non-abrasive, non-freezing and non-toxic . . . highly effective on flammable liquid and electrical fires.

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George Morris Survey, TD 7,433 ft., pay 6,564-69 ft., IP 6,200 M.c.f. gas.

**MORGAN (CRABB).**—San Patricio, January; Southern Minerals Corp. 2 T. C. Hill et al, George Morris Survey, A-19, TD 7,185 ft., pay 6,684-88 ft., IP 10,000,000 cu. ft gas.

**NORTH MATHIS.**—San Patricio, March; Fred M. Manning, Inc., 1 J. V. Nelson et al, W. R. Ray Survey 4, A-337, TD 4,860 ft., pay 2,788-98 ft., IP 1,520,000 cu. ft. gas.

**PALO BLANCO.**—Brooks, November; W. H. Holland and N. B. Hunt 1 Alexander, Palo Blanco Grant, TD 3,659 ft., pay 2,990-97 ft., IP 75 bbl., 31.5° gravity.

**SARITA.**—Kenedy, April; Humble Oil & Refining Co. B-6 John G. Kenedy, Jr., Block 12, Kenedy Pasture Co., First addition to Sarita Township, El Paistle Grant, TD 8,848 ft., pay 6,967-83 ft., IP 57 bbl., 41° gravity.

**SARITA.**—Kenedy, April; Humble Oil & Refining Co. B-9 John G. Kenedy, Jr., Account 1, El Paistle Grant, TD 9,501 ft., pay 6,258-68 ft., IP 117 bbl., gravity 40.8.

**SOUTH RICHARD KING (BAILEY).**—Nueces, April; Skelly Oil Co. 1 Minerva Patch, Section 29, Richard King Farm lots, TD 6,600 ft., pay 5,450-56 ft., IP 121 bbl., gravity 38.1.

**WEST CORPUS CHRISTI.**—Nueces, August; The Chicago Corp. 2 J. C. Wilson, Lot 1, Section 6, Range 7, pay 8,348-58 ft., TD 9,309 ft., IP 99 bbl.

**WEST CORPUS CHRISTI.**—Nueces, January; Tide Water Associated Oil Co. 2 Guaranty Title & Trust Co., J. C. Russell Farm lots, Enrique Villareal Survey, TD 11,350 ft., pay 9,843-73 ft., IP 1,495,000 cu. ft gas with 49 bbl. condensate per day.

**YZAGUIRRE.**—Starr, May; British-American Oil Co. 2 T. B. Slick Est., Yzaguirre Survey 230, TD 8,974 ft., pay 4,890-4,902 ft., IP 6,200 M.c.f. gas.

## EAST TEXAS

### Districts 5, 6 and 6-P

#### NEW POOLS

**BUD LEE**—Smith, October; A. O. Phillips 1 E. G. Staples, J. C. Robertson Survey, A-853, and M. Culbertson Survey, 1 mile northwest of Mt. Sylvan, Paluxy 7,556-68 ft., IP 309 bbl.

**EAST SHERMAN**—Grayson, July; Standard Oil Co. of Texas 1 Beth Brown, H. C. Atkinson Survey, A-22, ½ mile east of Sherman, Strawn 3,348-80 ft., IP 193 bbl.

**FREESTONE**—Freestone, March; Humble Oil & Refining Co. 1 R. P. McWatters, George Lamb & E. H. Howell Survey, 7½ miles southeast Teague, Rodessa 8,315-8,400 ft., IP 6,500,000 cu. ft. of gas, small amount of distillate.

**LAKEVIEW**—Franklin, July; Byars & Peveto 1 Mark Talley, SP Survey, 8 miles north of Mount Vernon, Paluxy 4,412-17 ft., IP 135 bbl.

**MINEOLA**—Wood, July; F. R. Jackson 1 Joe Carr, James Colson Survey, 4 miles west Mineola, sub-Clarksville 4,612-36, 4,644-56 ft., IP 30 bbl.

**NOLAN EDWARDS**—Wood, June; Bobby Manziel 1 Bob Thompson, S. Yarbrough Survey, 2½ miles northwest Mineola, sub-Clarksville 4,692-4,702, 4,712-24 ft., IP 107 bbl.

**NORTH LANSING**—Harrison, December, Atlantic Refining Co. 1 M. P. Isom, E. A. Merchant Survey, A-430, 7½ miles northwest Hallsville, potential on Young zone of Rodessa only, 6,734-40, 6,762-68, 6,778-98, IP 416 bbl. of distillate.

**PEWITT RANCH**—Titus, October; W. M. Coats 2 P. H. Pewitt, Henry P. Banks Survey, 14 miles east Talco, Paluxy 4,507-32, 4,537-41 ft., IP 331 bbl.

**PINE MILLS**—Wood, October; J. M. Deupree & F. R. Jackson 1 J. A. Durrett, David Gilleland Survey, 3 miles southeast Pine Mills, sub-Clarksville 4,793-4,806 ft., IP 242 bbl.

**RED SPRINGS**—Smith, March; Humble Oil & Refining Co. 1 Everett Winters, William Price Survey, 8 miles northwest Winona, Rodessa 9,368-9,404 ft., IP 216 bbl.

**TENNESSEE COLONY**—Anderson, November; Continental Oil Co. 1 Royall National Bank, A. G. Monroe Survey, A-46, ½ mile southeast Tennessee Colony, upper

Rodessa 8,865-85 ft., IP 108 bbl., lower Rodessa 8,965-90 ft., IP 375 bbl. of distillate.

**TRAWICK**—Nacogdoches, June; Humble Oil & Refining Co. 1 Thurman Crawford, Zimri Bennett Survey, 2 miles northwest Trawick, Pettit 7,498-7,520, 7,527-40 ft., IP 235 bbl. of distillate.

**WALTER FAIR**—Kaufman, July; R. W. Fair 1 Angus Wynne, B. S. Newman Survey, 3¾ miles southwest Cedarvale, Paluxy 4,965-83 ft., IP 230 bbl.

**UNNAMED**—Freestone, November; Carter-Gragg Oil Co. 1 C. B. Robinson, James James heirs Survey, 7 miles north Fairfield, Pettit 7,600-45 ft., IP 2,775,000 cu. ft. of gas.

### NEW PAYS

**LONG LAKE**—Anderson, February; Tide Water and Seaboard 1 J. O. and Hugh Monnig, Simon Sanchez Survey, 9 miles southwest Palestine, south side of field, Rodessa 8,847-53 ft., IP 36 bbl. of distillate.

**SOUTH TYLER**—Smith, February; Phillips Petroleum Co. 1 McMinn, M. M. Long Survey, original discovery well of field in James limestone, Rodessa 9,550-70 ft., IP 248 bbl.

## WEST TEXAS

### Districts 8 and 7-C

### NEW POOLS

**ABELL, NORTHWEST**—Crane, March; George T. Abell 1 State-Pecos River Bed, 24-1-H&TC, McKee sand 5,405-5,789 ft., IP 260 bbl.

**BAUGH**—Schleicher, May; Ohio Oil Co. 1 A. L. Baugh, SE SE 18-M-GH&SA, Strawn 5,790-5,800 ft., IP 39.8 bbl.

**BUENOS**—Garza, October; Herman and George Brown 1 C. W. Bassinger, Section 726, B. Hall Survey, A-893, San Andres 3,526-36 ft., IP 86 bbl.

**CORDOVA LAKE**—Crane, October; Humble Oil & Refining Co. 1-B Jax Cowden, 16-2-H&TC, 12 miles southwest Crane, Devonian 5,470-5,510 ft., IP 224 bbl.

**DERMOTT**—Scurry, April; Humble 1-B B. A. Moore, SW NE 492-97-H&TC, 2 miles northeast Dermott, Ellenburger 8,200-40 ft., IP 47 bbl.

**DIAMOND M**—Scurry, January; Lion Oil Co. 2 C. T. McLaughlin, SE SE 197-97-H&TC, Canyon 6,569-6,615 ft., IP 649 bbl.

**DOCKERY**—Mitchell, July; Superior Oil Co. 1 J. R. Dockery, NE NE 17-28-T1S-T&P, 3 miles south Westbrook field, Ellenburger 7,979-89 ft., IP 172 bbl.

**Dunn**—Mitchell, October; Standard Oil Co. of Texas 1 B. F. Dunn, NW SW 64-20-La-Vaca Navigation Co. Survey, 5 miles east Vincent, Canyon 7,565-83 ft., IP 499 bbl.

**EARLY**—Scurry, April; Placid Oil Co. 1 Mrs. W. W. Early, Survey 1, Erving, Addison & Walker original grantees, 6 miles north Snyder, Strawn 7,520-45 ft., IP 291 bbl.

**EAST DOLLARHIDE**—Andrews, August; Magnolia Petroleum Co. 1-B E. P. Cowden, Special Account 2, NE NE 12-A-53-PSL, Devonian 10,186-10,201 ft., IP 37 bbl.

**FLANAGAN**—Gaines, February; Shell Oil Co. 1 W. L. Hawkins, 8-A23-PSL, 2½ miles southwest Robertson field, Ellenburger 12,180-251 ft., IP 844 bbl.

**FLORANCE**—Runnels, April; Florance Drilling Co. 1 E. W. Gray, NE NE NE Subdivision 40, Day Land & Cattle Co. Survey, 4 miles northwest Benoit, Pennsylvanian 2,369-96 ft., IP 142 bbl.

**FLYING W**—Winkler, March; Gulf Oil Corp. 135-D Keystone Cattle Co., SW NW 2-B1-PSL, Devonian 9,660-9,744 ft., IP 1,557 bbl.

**GARTNER**—Howard, June; Magnolia Petroleum Co. 1-A Herman Gartner, NW NW 67-20-LaVaca Navigation Co. Survey, northeast corner of county, Mississippian 8,190-8,490 ft., IP 60 bbl.

**GIESECKE**—Runnels, April; Homer Easterwood 2 H. Giesecke, SW SW SW Block 121, J. Hughes Survey 227, 15 miles southeast Ballinger, Gunsight 1,780-92 ft., IP 54 bbl.

**GOOD**—Borden, April; Seaboard Oil Co. and Pan American Production Co. 1 T. J. Good, 37-33-T4N-T&P, 6 miles northwest Vealmoor field, Canyon 7,910-8,010 ft., IP 448 bbl.

**HARRIS**—Gaines, October; The Texas Co. 1 E. D. Harris, NE NE 17-A-22-PSL, 5 miles

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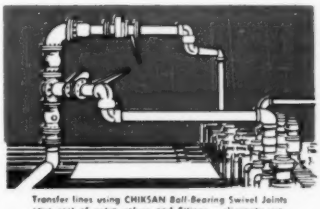
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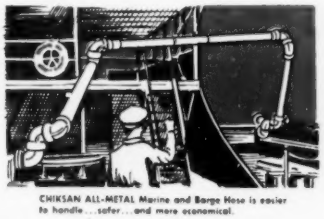
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east Flanagan field, Glorietta 5,965-80 ft., IP 41 bbl.

**JIMBURT**—Runnels, September; Woods Drilling Co. 1 Carl Vogler, J. C. McKean Survey 534, Gunsight 2,349-66 ft., IP 125 bbl.

**KELLEY**—Scurry, May; Magnolia 1 A. B. Eicke, SW SW 209-97-H&TC, 4 miles west Snyder, Canyon 6,767-78 ft., IP 166 bbl.

**LAWSON SIMPSON**—Ector, October; Edward C. Lawson 1 Augusta Barrow, SE NE 44-44-T1S-T&P, Permian 5,554-95 ft., IP 452 ft.

**MOUND LAKE**—Terry, March; Seaboard Oil Co. 1 E. M. Hinson, NW NW 91-4X-ELRR, 10 miles east Brownfield, Pennsylvanian 9,405-55 ft., IP 150 bbl.

**NORTH GAIL**—Borden, March; H. L. Hunt 1-B Blayton & Johnson, NW NW 22-31-T6N-T&P, 10 miles northwest Gail, Sprayberry sand 5,730-45 ft., IP 40 bbl.

**NORTH WINTERS**—Runnels, April; George W. Strake 1 B. A. Jacob, Section 83, J. Hensley Survey, 4 miles northwest Winters, Gunsight 2,811-25 ft., IP 72 bbl.

**ODOM**—Runnels, June; Humble 1 Sally Odom, Felix Sosa Survey 302, 6 miles southeast Blackwell, lower Strawn 5,435-54 ft., IP 319 bbl.

**PEGASUS**—Upton, March; Magnolia 1-A TXL, NW NW 31-40-T&P, on south Midland County line, Ellenburger 12,700-60 ft., IP 975 bbl.

**SHARON RIDGE CANYON**—Scurry, April; Humble Oil & Refining Co. 1 Richard Bishop, SW SW 164-97-H&TC, Canyon 6,665-80 ft., IP 349 bbl.

**SOUTH GAIL**—Borden, April; H. L. Hunt 1 Clayton & Johnson, SW NW 24-31-T4N-T&P, 6 miles south Gail, Wolfcamp 6,490-96 ft., IP 19 bbl.

**TEX HARVEY**—Midland, February; Tex Harvey Oil Co. 1 Mrs. B. W. Floyd, SE NE 16-37-T&P, 13 miles southeast Midland, Clear Fork 7,865-75, 8,045-55 ft., IP 135 bbl.

**WARFIELD**—Midland, April; Texas Co. 1 Clarence Scharbauer, SW SW 20-40-T2S-T&P, 1 mile south Warfield, Ellenburger 13,049-13,150 ft., IP 38 bbl.

**WILLIAMS**—Borden, June; Sinclair Oil & Gas Co. 1 Sterling Williams, NE NE 45-32-T6N-ELRR, 9½ miles west, 3½ miles north Gail, Ellenburger 9,915-45 ft., IP 663 bbl.

**WINGATE**—Runnels, July; Fred M. Manning, Inc., 1 S. L. McNay, Section 293, J. Jeffries Survey, 3½ miles northwest Wingate, Pennsylvanian 5,282-90 ft., IP 55 bbl.

**WINFIELD**—Scurry, August; Stanolind Oil & Gas Co. 1 R. H. Jordan, 597-97-H&TC, northwest corner of county, Mississippian 8,220-60 ft., IP 47 bbl.

**UNNAMED**—Ector, June; Forest Oil Corp. 1 Phillips-TXL, NE NW 25-45-1S-T&P, Clear Fork 5,740-6,260 ft., IP 200 bbl.

**UNNAMED**—Runnels, November; Rambo & Stephens and T. W. Murray 1 Stephens, Section 81, CTRR Survey, 6 miles northwest Winters, Strawn 4,513-17 ft., IP 1,652 bbl.

**UNNAMED**—Runnels, November; William Hamm, Jr., 1 S. L. McNay, Jose Marea Garcia Survey 299, 3½ miles northwest Wingate, 6,500 ft. west Manning 1 McNay, Pennsylvanian 5,320-30 ft., IP 146 bbl.

**UNNAMED**—Scurry, May; J. L. Collins 1 G. E. Parks, CW½ SW NW 442-97-H&TC, 9 miles north Snyder, Strawn 7,312-22 ft., IP 512 bbl.

## NEW PAYS

**ABELL, SAN ANDRES & WADDELL**—Pecos, October; Richardson & Bass 1 Texas Cotton Industries, 13-3-H&TC, 1½ miles west Ellenburger production, San Andres 2,220-2,300 ft., IP 95 bbl.; Waddell 6,143-56 ft., IP 57 bbl.

**BEDDO**—Runnels, July; Chapman & McFarlin 1 W. B. Dankworth, Domingo Diaz Survey 532, 6 miles northeast Ballinger, Jennings 3,720-25 ft., IP 624 bbl.

**BENEDUM**—Reagan, January; Plymouth Oil Co. 1-2 W. H. Dixon, Section 2, Peter Beach Survey 2, Wolfcamp 7,390-7,430 ft., IP 18 bbl. 38°-gravity oil.

**BENEDUM**—Upton, February; Plymouth Oil Co. 1 Joe S. Elliott, SE SE 46-Y-MK&T, Bend lime 10,584-10,618 ft., IP 257 bbl.

**C-BAR**—Crane, March; Gulf Oil Corp. 3-G Hattie Connell, SE NE 27-B-22-PSL, San Andres 3,520-49 ft., IP 199 bbl.

**DIAMOND M**—Scurry, October; Hiawatha Oil & Gas Co. 7 L. M. Wilson, 183-97-H&TC, Clearfork 4,170-3,225 ft.

**DOLLAR HIDE**—Andrews, June; Cities Service Oil Co. 1-C-E, 1-D-E E. P. Cowden, SE SW 14-A-52-PSL, Clear Fork 6,545-6,650 ft., IP 492 bbl.

**DOSS**—Gaines, July; Ralph Lowe 1 Helen Cunningham, SE NW 4-A24-PSL, 10 miles southwest Seminole, Wolfcamp 8,850-8,950 ft., IP 458 bbl.

**DOSS**—Gaines, September; Ralph Lowe 1-B Cunningham, NE SW 4-A24-PSL, southeast offset to discovery well, Canyon 8,840-8,945 ft., IP 303 bbl.

**FLANAGAN DEVONIAN**—Gaines, September; Magnolia 1 Flanagan Estate, SW NW 9-A23-PSL, Devonian 10,345-82 ft., IP 537 bbl.

**LANDON**—Cochran, March; Stanolind Oil & Gas Co. 2 J. F. Edwards, 13-L-PSL, Devonian 10,913-55 ft., IP 237 bbl.

**NORTH GOLDSMITH CLEAR FORK**—Ector, August; General American Oil Co. 1 C. F. Scharbauer-Penn 40, SE SE 29-44-T1N-T&P, Clear Fork 5,496-5,543, 5,565-5,616 ft., IP 251 bbl.

**NORTH SNYDER STRAWN**—Scurry, October; Sunray Oil Corp. 1 L. S. Sentell, Tract 2, Section 26, Block 1, J. P. Smith Survey, Strawn open hole 7,494-7,508 ft.

**PECOS VALLEY ELLENBURGER**—Pecos, October; Fullerton Oil Co., Callery & Hurt, and Peerless Oil & Gas Co. 1-D Kone Production Co., 36-3-H&TC, 4 miles east Santa Rosa field, Ellenburger 7,971-8,157 ft., IP 505 bbl.

**SPRAYBERRY**—Dawson, February; Seaboard Oil Co. 2 S. E. Lee, 47-34-T&P, lower Permian 6,420-50 ft., IP 319 bbl.

**SUSAN PEAK**—Tom Green, July; Plymouth Oil Co. 3-A J. D. Robertson, SE NE 193-District 11, SPRR Survey, Canyon 4,360-4,400 ft., IP 67 bbl.

**UNIVERSITY WADDELL ELLENBURGER**—Crane, May; Gulf Oil Corp. 4-HH-D University, SW SE 3-31-University Lands, Devonian 8,988-9,250 ft., IP 520 bbl.

**WINTERS**—Runnels, October; Humble Oil & Refining Co. 1 Bud Herndon, B. W. Taylor Survey 2, 3 miles south Winters, Pennsylvanian 3,938-4,019 ft., IP 167 bbl.


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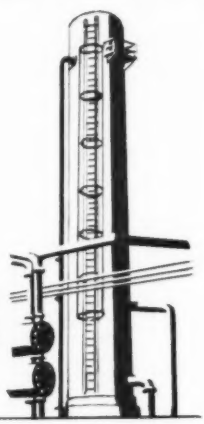

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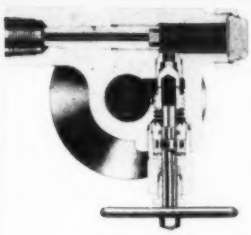

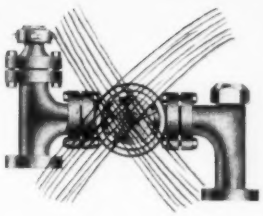

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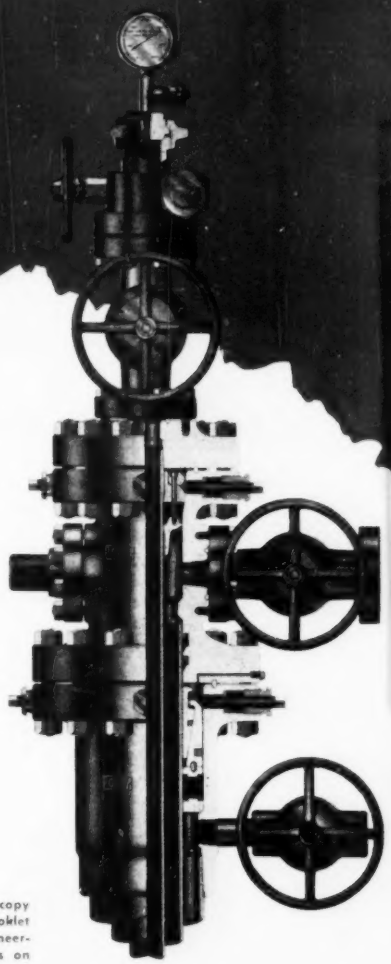

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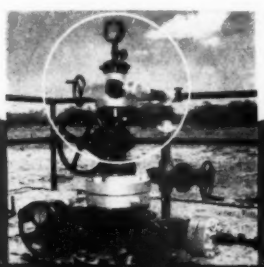

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## SOUTHEAST NEW MEXICO

### NEW POOLS

**BOUGH**—Lea, May; Magnolia Petroleum Co. 1 Betenbaugh, SW SW 12-9s-35e, Pennsylvanian 9,617-35 ft., IP 510 bbl.

**DENTON**—Lea, October; McAlester Fuel Co. 1 J. M. Denton, SW SE 11-15s-37e, Devonian 11,325-11,417 ft., IP 456 bbl.

**HOUSE**—Lea, February; Stanolind Oil & Gas Co. 1-U State, SE SE 2-20s-38e, Tubb 6,980-7,149 ft., IP 41 bbl.

**KNOWLES**—Lea, May; Amerada Petroleum Corp. 1 Hamilton, NE SW 35-16s-35e, Devonian 12,518-12,600 ft., IP 935 bbl.

**UNNAMED**—Lea, September; Stanolind Oil & Gas Co. 1 Leonard-Federal, SE SE 11-26s-37e, Devonian 9,410-9,530 ft., IP 24 bbl.

### NEW PAYS

**BAGLEY**—Lea, October; Mid-Continent Petroleum Corp. 1-65 State, SW NW 1-12s-33e, Pennsylvanian 8,800-48 ft., IP 62 bbl.

**CROSSROADS**—Lea, March; Mid-Continent Petroleum Corp. 1-B U. D. Sawyer, NE NW 34-9s-36e, Mississippian 12,376-12,460 ft., IP 210 bbl.

**CROSSROADS**—Lea, August; Magnolia Petroleum Co. 1-B Santa Fe, NE SE 28-9s-36e, Pennsylvanian 9,750-70 ft., IP 175 bbl.

**DENTON**—Lea, December; Atlantic Refining Co. 1-A Dickenson, NW NW 13-15s-37e, Mississippian, IP 350 bbl.

**LANGLIE MATTIX**—Lea, May; Stanolind Oil & Gas Co. 1 South Mattix Unit, NW SE 15-24s-37e, Ellenburger 9,505-64 ft., IP 383 bbl.

## TEXAS PANHANDLE

### District 10

### NEW POOL

**LIPS**—Roberts, April; Sinclair Oil & Gas Co. 1 C. S. Lips, 135-C-G&M Survey, north-central part of county, Mississippian 8,900-70, 9,010-50 ft., IP 420 bbl.

### EXTENSION

**LIPS**—Roberts, September; Sinclair Oil & Gas Co. 2 Lips, Tract B, SW NE 157-13-T&NO Survey, 1 mile northwest 1 Lips, on north county line, Pennsylvanian 8,110-65 ft., IP 12,777,000 cu. ft. gas, distillate not reported.

## NORTH CENTRAL TEXAS

### Districts 9 and 7B

### NEW POOLS

**ACME.**—Clay, February; S. D. Johnson 1 Bertha Miller, Lot 5, Block 11, Clark & Plumb Subdivision, 3 miles southwest Halsell, Caddo 5,380-91 ft., IP 65 bbl.

**ARCHER CITY, WEST.**—Archer, March; Featherston, Spraggins & Riner 1 W. C. Thomas, Block 2, N. Thomas Survey, 2 miles northwest Archer City, Strawn, 3,718-22 ft., IP 72 bbl.

**ATER.**—Nolan, August; Skelly Oil Co. 1 E. A. Ater, 67-23-T&P, 5 miles southwest Rosco, Ellenburger, 7,097-7,118 ft., IP 154 bbl.

**BOMAR.**—Fisher, November; A. G. Hill and Walter Duncan 1 W. P. Bomar, T. H. Cosby Survey 315, 3 miles east Roby, Flippen, 3,556-80 ft., IP 176 bbl.

**CLINGINGSMITH.**—Montague, April; R. J. Caraway and P. C. Bundy 1 Clingingsmith, J. Winn Survey, A-868, 2½ miles northwest Montague, conglomerate, 6,145-6,327 ft., IP 187 bbl.

**DALY.**—Wise, September; Signal Oil & Gas Co. et al 1 Daly Unit 4, J. Liles Survey, A-1172, 7 miles northwest Springtown, Caddo., 3,906-4,062 ft., IP 475 bbl.

**DE MOSS.**—Archer, November; J. J. Lynn A. J. DeMoss, Lot 18, Block 5, Clark & Plumb, 5 miles southeast Archer City, Strawn, 3,608 ft., IP 302 bbl.

**GOAT HILL.**—Coleman, March; Woods Drilling Co. 1 J. P. McCord, Eliza Yancy Survey 158, 3 miles north Glen Cove, Fry sand, 3,300-10 ft., IP 108 bbl.

**JACK COUNTY REGULAR.**—Jack, May; C. G. Glasscock and Pontiac Refining Co. 1 R. L. Morris, J. U. Fields Survey, A-218, 7 miles west Chico, conglomerate, 5,413-26, 5,438-69 ft., IP 480 bbl.

**LAWN.**—Taylor, July; J. P. Production Co. 1 N. V. Atwood, Section 433, J. C. Thompson Survey, 2½ miles southwest Lawn, Gardner sand, 4,103-21 ft., IP 75 bbl.

**LEMASTER.**—Cooke, July; Snuggs & Neal 2 G. A. LeMaster, Block 2, League 7, University Lands, A-1452, 10 miles northeast Gainesville, pay 2,747-54 ft., IP 119 bbl.

**McLEOD.**—Nolan, July; Iowa-Payne Oil Co. 1 N. L. McLeod, 44-19-T&P, 2 miles south Trent, pay 5,125 ft., IP 46 bbl.

**MEDDERS-HANCOCK.**—Archer, February; Tom B. Medders 1 Mrs. O. M. Fuller "C," 12-1-H&TC, 7½ miles south Wichita Falls, Vogtsberger sand, 4,746-77 ft., IP 121 bbl.

**PARDUE.**—Fisher, March; Texas Pacific Coal & Oil Co. 1 A. E. Pardue, SW SW SE 199-1-H&TC, 4 miles northwest Hamlin, dual completion, Swastika, 3,772-80 ft., IP 127 bbl., Ellenburger, 5,948-84 ft., IP 78 bbl.

**PINCKLEY.**—Taylor, July; Geochemical Surveys, Inc., 1 J. S. Pinckley, Block 1, League 124, Grimes County School Land Survey, 1¾ miles northeast Merkel, Ingram, 2,709-13 ft., IP 102 bbl.

**POST OAK.**—Jack, March; Mid-Continent Petroleum Corp. 1 W. N. Killen, B. Lewis Survey, 3 miles southwest Post Oak, Strawn, 3,792-95 ft., IP 93 bbl.

**ROBY.**—Fisher, March; Lion Oil Co. 1 Mrs. Keith Newman, Subdivision 12, Block 2½, J. Rodman Survey, 3½ miles southeast Roby, Swastika, 4,038-40 ft., IP 207 bbl.

**SOUTH HASKELL.**—Haskell, July; Stanolind Oil & Gas Co. 1 John M. Pace, T. D. Owings Survey 111, 3¾ miles southeast Haskell, Canyon reef, 3,610-15 ft., IP 352 bbl.

**THRIFT.**—Wise, March; R. B. Thrift Trustee 1 W. O. Blocker, Block 6, W. A. Gorman Survey, 6 miles west Chico townsite, conglomerate, 5,494-5,522 ft., IP 120 bbl.

**UNNAMED.**—Archer, May; W. H. Hammon 1-C Fassett & Tuttle, Block 37, Cherokee County School Lands Survey, 4 miles southeast Wichita Falls, Caddo, 5,305-18 ft., IP 152 bbl.

**UNNAMED.**—Archer, February; L. H. Choate 1 A. Abercrombie, Wm. A. Hassell Survey, 2 miles southeast Archer City, sand, 3,715-25 ft., IP 57 bbl.

**UNNAMED.**—Archer, March; L. T. Burns 2 D. L. Bishop, Block 52, L. M. Meade Pasture Subdivision, 3 miles northeast Megargel, Caddo, 4,644-48 ft., IP 180 bbl.

**UNNAMED.**—Archer, March; Mora Drilling Co. 1 T. B. Wilson, Section 2, S. P. Ellis Survey, 5 miles south Mankins, Caddo, 4,956-82 ft., IP 96 bbl.

**UNNAMED.**—Archer, September; Needl & Hood Drilling Co. 1 L. F. Wilson estate, Lot 3, Block 59, ATNCL Survey, 9 miles southeast Holliday, Strawn, 3,962-76 ft., IP 210 bbl.

**UNNAMED.**—Callahan, September; B. F. Phillips 2 R. D. Williams, Section 139, University Lands, 5 miles northwest Putnam, pay 2,140-50 ft., IP 141 bbl.

**UNNAMED.**—Clay, August; Jack Grace 1 W. C. Fields, Block 19, Grayson County School Lands, 8½ miles southwest Henrietta, Caddo, 5,921-46 ft., IP 168 bbl.

**UNNAMED.**—Clay, August; Jack Grace 1 D. M. Cobb, J. Scott Survey, 7½ miles northwest Shannon, Caddo, 5,590-5,600 ft., IP 408 bbl.

**UNNAMED.**—Clay, September; L. T. and Bobby Burns 11 McGregor, M. Quinn Survey, 8 miles northeast Scotland, pay 4,658-73 ft., IP 101 bbl.

**UNNAMED.**—Coleman, July; W. E. Stepps and T. J. Maxwell 1 Mrs. George Sparkman, S. Crooks Survey, 2½ miles south Coleman, pay 2,100-17 ft., IP 133 bbl.

**UNNAMED.**—Coleman, September; Dunham, Young & Shield 1 Calvin Campbell, Mary Ann Fisk Survey 630, 3½ miles east Santa Anna, Marble Falls, 2,311-55 ft., IP 419 bbl.

**UNNAMED.**—Comanche, July; Sohio Petroleum Co. 1 J. W. Ward, Block 25, Lampasas County School Lands, 2½ miles northwest Sidney, Mississippian, 2,525-68 ft., IP 103 bbl.

**UNNAMED.**—Cooke, July; Kay Kimbell 1 W. E. Winger, Block 84, Fannin County School Lands, 2 miles west Balm, pay 5,854-67 ft., IP 210 bbl.

**UNNAMED.**—Cooke, October; Kimbell-Sims 1 George Anderson, Block 25, Fannin County School Lands, 1 mile northeast Callisburg, pay 3,611-20 ft., IP 115 bbl.

**UNNAMED.**—Fisher, May; Texas Pacific Coal & Oil Co. 1 Port H. Williams, 200-1-H&TC, 5½ miles northwest Hamlin, Swastika, 3776-82 ft., IP 185 bbl.

**UNNAMED.**—Fisher, May; Woods Drilling Co. 1 Radford & Shell, Block 13-B, W. E. Hatchet Survey, 2½ miles west Royston, Canyon, 4,732-40 ft., IP 154 bbl.

**UNNAMED.**—Jack, February; Russell Maguire 1 T. H. Cherryhomes, D. Crenshaw Survey, 7 miles southeast Jacksboro, conglomerate, 4,747-52 ft., IP 109 bbl.

**UNNAMED.**—Haskell, February; Danciger Oil and Refining Co. 1 C. L. Bogard, 239-45-H&TC, 4½ miles west Rochester, Strawn 5,023-27 ft., IP 180 bbl.

**UNNAMED.**—Haskell, May; Humble Oil & Refining Co. 1 C. G. Burson, Block 12, J. Korus Survey, 8 miles southwest Weinert, Pennsylvanian, 4,735-55 ft., IP 150 bbl.

**UNNAMED.**—Jack, March; Warren Oil Corp. 1 C. O. Tilghman, Block 4, Navarro County School Lands, 3 miles southwest Jacksboro, Mississippian, 5,386-5,408 ft.

**UNNAMED.**—Jack, March; Jack Grace 1 L. L. Campsey, J. M. Hudson Survey, 9 miles north Jacksboro, conglomerate 5,492-5,504 ft., IP 220 bbl.

**UNNAMED.**—Jack, June; Mid-Continent Petroleum Corp. 1 C. E. Campsey, M. W. Thompson Survey, 4 miles southwest Post Oak, conglomerate, 6,333-57 ft., IP 308 bbl.

**UNNAMED.**—Jack, June; Russell Maguire 1 R. E. Kelsey, B. B. Straughn Survey, 6 miles north Perrin, Caddo, 4,566-80 ft., IP 235 bbl.

**UNNAMED.**—Jack, July; Hanlon-Boyle, Inc. 1 J. R. Dodson, J. W. Williams Survey, 7 miles south Antelope, Caddo, 4,536-70 ft., IP 168 bbl.

**UNNAMED.**—Jack, September; Warren Oil Corp. 1 Gresham-Davis, John Little Survey, 6 miles northwest Jacksboro, Ellenburger, 5,695-5,780 ft., IP 193 bbl.

**UNNAMED.**—Jack, November; Russell Maguire 1 H. L. Roper, Block 21, League 2, Henderson County School Lands, 2 miles northwest Joplin, conglomerate, 4,592-4,609 ft., IP 151 bbl.

**UNNAMED.**—Jones, February; Roark, Hooker & Roark 1 Alec Carter, 53-18-T&P, 1½ miles north Noodle, Hope lime, 2,772-76 ft., IP 185 bbl.

**UNNAMED.**—Jones, July; J. C. Drilling Co. H. C. Harvey, 11-14-T&P, 3 miles southeast Nugent, sand, 1,698-1,719 ft., IP 100 bbl.

**UNNAMED.**—Montague, December; Magnolia Petroleum Co. 1 Johnnie Carminati, Block 193, J. Belcher Subdivision, 4½ miles northwest Montague, Caddo, 5,629-44 ft., IP 140 bbl.

**UNNAMED.**—Stephens, February; Texas Pacific 1 S. L. Harris, Section 17, T&P Survey, 10 miles southeast Breckenridge, Marble Falls, 3,734-44, 3,880-96 ft., IP 193 bbl.

**UNNAMED.**—Stephens, March; Bond Oil Co. et al 1 J. B. Sloan, Section 1,161, TE&L Survey, 1½ miles north Crystal Falls, pay (?), IP 165 bbl.

**UNNAMED.**—Stephens, April; Star Oil Co., Inc., 1 Ed Ford "E," 5-1-SPRR, 7½ miles northeast Ivan, Caddo, 4,959-95 ft., IP 130 bbl.

**UNNAMED.**—Stephens, April; McElroy Ranch Co. 1 Will Ackers, James Lee Survey, 3 miles northwest Breckenridge, pay, 3,205-09 ft., IP 112 bbl.

**UNNAMED.**—Stephens, July; McElroy Ranch 1 R. W. Tipton, 5-8-T&P, 15 miles northwest Breckenridge, Mississippian, 4,242-4,642 ft., IP 250 bbl.

**UNNAMED.**—Stephens, November; McElroy Ranch 1-B Stover, 3-8-T&P, 5 miles northwest Breckenridge, Mississippian, 4,600-4,746 ft., IP 175 bbl.

**UNNAMED.**—Throckmorton, March; Kriss and Schwarts 2 M. Daws, C. W. Marguess Survey, 12 miles southwest Throckmorton, Pennsylvanian sand, 2,808-18 ft., IP 480 bbl.

**UNNAMED.**—Throckmorton, May; James H. Snowden 1 Norton Heirs, Section 2,315, TE&L Survey, 7 miles northeast Woodson, Mississippian, 4,621-30 ft., IP 132 bbl.

**UNNAMED.**—Throckmorton, November; Warren Oil Corp. 1 Malcolm, Section 2207, TE&L Survey, 3½ miles northeast Woodson, Mississippian 4,565-96 ft., IP 260 bbl.

**UNNAMED.**—Wichita, November; Southern Petroleum Exploration, Inc., and Chas. E. Morrison 1 R. Lee Kempner, Block 80, KWVFL, Section 80-5-SPRR Survey, 4½

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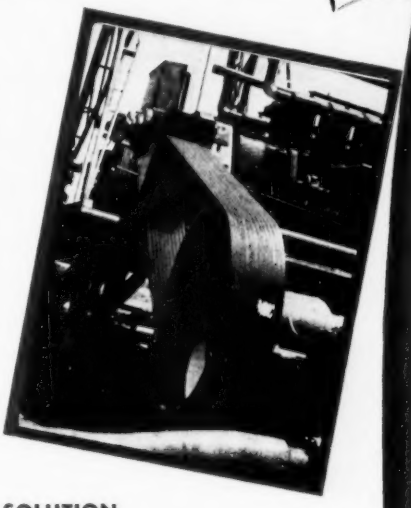

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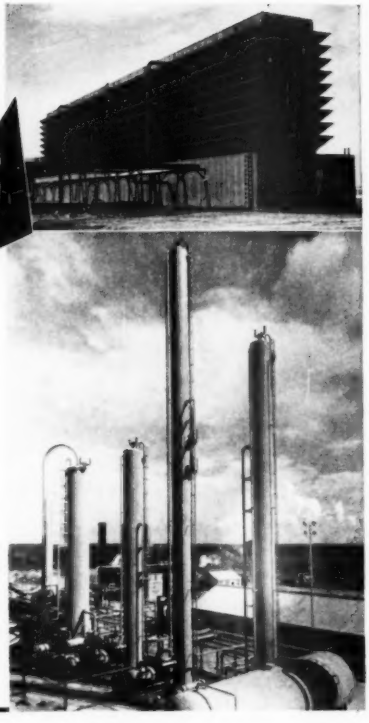

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miles northwest Holliday, Caddo, 4,305-28 ft., IP 122 bbl.

**UNNAMED.**—Wichita, November; W. H. Hammon 1-A L. T. Cook, Block 19, Cherokee County School Lands, 2½ miles southeast Wichita Falls, Vogtsberger, 4,861-83 ft., IP 149 bbl.

**UNNAMED.**—Young, May; Signal Oil & Gas Co. 1 G. D. Hunt, TE&L Survey, 11 miles west Graham, Mississippian 4,513-4,637 ft., IP 187 bbl.

**UNNAMED.**—Young, April; Pure Oil Co. 1 J. K. Jeffery estate, Section 54, E&L Survey, 3 miles northeast Padgett, Mississippian, 4,815-50 ft., IP 194 bbl.

**UNNAMED.**—Young, November; British-American Oil Producing Co. 2 G. H. Roach "B," Section 304, TE&L Survey, 10 miles west Olney, Caddo, 4,085 ft., IP 224 bbl.

### NEW PAYS

**BIRD**—Taylor, July; Geochemical Surveys, Inc., 1 Craig Humphreys, Block 28, League 147, Grimes County School Lands, 1½ miles east Merkel, Cook sand 2,572-76 ft., IP 331 bbl.

**DALY**—Wise, July; Signal Oil & Gas Co. 1 Henry Horton Unit 2, G. A. Frazier Survey 48, A-893, 6½ miles north Springtown, Caddo 3,835-85 ft., IP 192 bbl.

**MURRAY**—Throckmorton, July; Wichita River Oil Co. 3 W. T. Donnell, Section 2,364, TE&L Survey, 4 miles northwest Murray, pay 2,845-63 ft., IP 75 bbl.

**THOMAS**—Montague, November; Harvey Drilling Co. and Burk Royalty Co. 1 Fred Wines, Block 95, Kaufman County School Lands, 8 miles north Bonita, sand 2,999-3,010 ft., IP 70 bbl.

## NORTH LOUISIANA

### NEW POOLS

**BOSSIER CITY**—Bossier, July; McAlester Fuel Co. 1-A Waller estate, SW SW 27-18n-13w, Pettit 5,555-64 ft., IP 74 bbl.

**INDIAN BLUFF**—LaSalle, July; Justiss-Mears Oil Co. 1 J. E. Harris, NW NW 2-6n-3e, Wilcox, 4,004-14, IP 80 bbl.

**SOUTH SAREPTA**—Bossier, June; Barnsdall Oil Co. 1 Ardis & Co., NW NW 27-22n-11w, dual completion, Ardis sand 9,156-86 ft., IP 1,112,000 cu. ft. gas, 200 bbl. 55°-gravity distillate; Bodcaw 8,712-34 ft., 2,980,000 cu. ft. gas, 190 bbl. 60°-gravity distillate.

**UNNAMED**—Caddo, May; Phillips Petroleum Co. 1 C. Ellerbe, 17-15n-12w, Kilpatrick lime of Rodessa 4,450-70 ft., IP 2,195,000 cu. ft. gas, 38 bbl. 61°-gravity distillate.

**UNNAMED**—Catahoula, September; Marine Oil Co. 1 Farrier, NE SW 19-5n-6e, Wilcox 5,855-57 ft., IP 168 bbl.

### NEW PAYS

**EAST HAYNESVILLE**—Claiborne, March; Hunt Oil Co. 1 S. W. Owens, SW NW SE 13-23n-7w, Cotton Valley 8,580-8,600 ft., IP 276 bbl. 62°-gravity distillate.

**EAST HAYNESVILLE**—Claiborne, May; J. R. Frankel 1 J. W. Maddox, NE NE 28-23n-7w, Smackover 10,145-160 ft., IP 412 bbl.

**RODESSA**—Caddo, April; Arkla Oil Co. 5 M. L. Pits, 11-23n-16w, Smackover 10,821-45 ft., IP 2,225,000 cu. ft. gas, 15-35 bbl. distillate per 1,000,000 cu. ft.

**SIBLEY**—Webster, March; Sam E. Wilson, Jr., 1 T. Crichton, NE SE SE 34-18n-9w, James 5,636-45 ft., IP 5,000,000 cu. ft. gas, 75 bbl. distillate.

## SOUTH LOUISIANA

### NEW POOLS

**AVONDALE.**—Jefferson, June; Humble Oil & Refining Co. 1 T&NO RR, 26-13s-22e, TD 10,299 ft., sand, 8,183-88 ft., IP 219 bbl., 21° gravity.

**BAY MARCHAND, BLOCK 2.**—Lafourche, March; The California Co. 1 Louisiana State Lease 1366, Block 2, offshore, TD 3,721 ft., sand, 2,873-92 ft., IP 255 bbl., gravity 26.7°.

**BAY MARCHAND.**—Lafourche, June; The California Co. B-2 State Lease 1366, Block 2, offshore, TD 5,448 ft., sand, 2,956-64 ft., and 2,990-3,005 ft., IP 150 bbl., 20.3° gravity.

**BIG ISLAND.**—Rapides, November; Union Producing Co. and M. H. Marr 1 Hudson, 11-4n-3e, Miocene, 5,565-67 ft., TD 10,223 ft., IP 390 bbl., 46.9° gravity.

**BURTON.**—St. James, August; Humble Oil & Refining Co. 2 Burton-Swartz Land Corp., 51-12s-15e, TD 11,450 ft., sand 10,838-48 ft., IP 227 bbl. condensate.

**BRETON SOUND, BLOCK 32 (offshore)**—, Plaquemines, August; Barnsdall Oil Co. 5 Breton State Lease 1227, TD 9,022 ft., sand, 5,802-04 ft., IP 187 bbl., 25.1° gravity.

**DUCK LAKE.**—St. Martin, January; Humble Oil and Refining Co. 1 Atchafalaya Land Co., 1-15s-11e, TD 12,525 ft., sand, 11,642-52 ft., IP 273 bbl., gravity 36.2°.

**ESTHERWOOD.**—Beauregard, May; Barnsdall Oil Co. 1 M. Jones, 3-6s-9w, TD 8,355 ft., sand 8,320-36 ft., IP 324 bbl., 47.2° gravity.

**FORDOCHE.**—Pointe Coupee, January; Texas Co. 1 Joseph Oscar Long et al, 29-6s-8e, TD 10,280 ft., sand, 8,282-90 ft., IP 332 bbl., gravity 34.6°.

**HOLLY BEACH.**—Cameron, September; Magnolia Petroleum Co. 1 Henry Heirs, 12-15s-11w, TD 10,814 ft., sand, 10,655-60 ft., IP 69 bbl. distillate plus 5,000 M.c.f. gas.

**LAKE RACCOURI.**—Lafourche, October; Humble Oil & Refining Co. 1 State Lease 1452, Timbalier Bay, TD 14,918 ft., sand, 14,434-67 ft., IP 179 bbl. condensate plus 4,123 M.c.f. gas.

**LAKE RACCOURCI.**—Lafourche, April; Humble Oil & Refining Co. 1 State Lease 1452, Section 29, TD 14,650 ft., sand, 9,841-44 ft., IP 455 bbl., 50.2° gravity.

**LITTLE CHENIER.**—Cameron, March; Gulf Refining Co. 1 Mermentau Mineral & Land Co., Inc., 14-14s-6w, TD 13,260 ft., sand, 10,422-28 ft., IP 289 bbl., gravity 37.2°.

**MALLARD BAY.**—Cameron, April; Cecil Hagen Co. 1 A. E. White, 14-13s-13w, TD 10,642 ft., sand, 6,715-44 ft., IP 160 bbl., gravity 39.7°.

**MANILA VILLAGE.**—Jefferson, March; Tide Water Associated Oil Co. 1 State Lease 1299, 25-18s-24e, TD 13,050 ft., sand, 12,944-13,050 ft., IP 157 bbl., gravity 39°.

**MIDLAND.**—Acadia, June; Sun Oil Co. and Sohio Oil Co. 3 Lapleau Estate, 49-10s-2w, TD 11,850 ft., sand 10,618-30 ft., IP 134 bbl. condensate.

**PELICAN ISLAND.**—Plaquemines, April;


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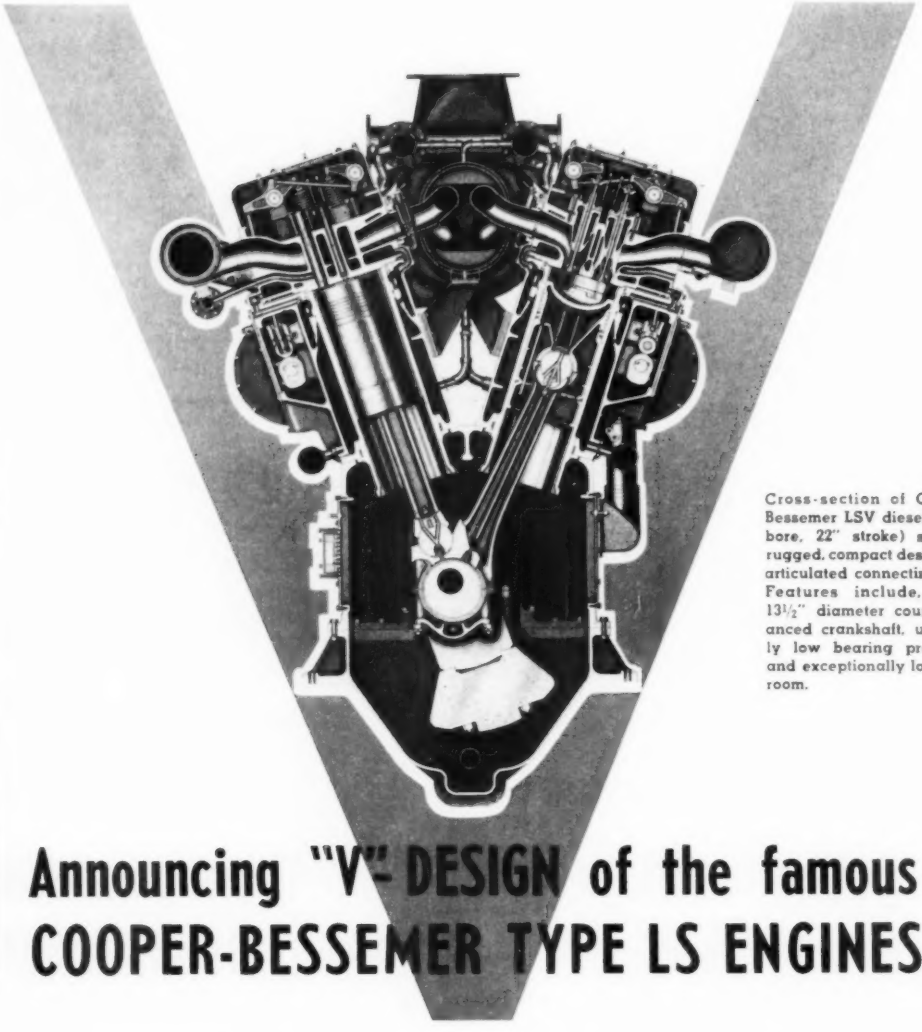

Cross-section of Cooper-Bessemer LSV diesel (15½" bore, 22" stroke) showing rugged, compact design and articulated connecting rods. Features include, large 13½" diameter counterbalanced crankshaft, unusually low bearing pressures, and exceptionally low head room.

# Announcing "V"-DESIGN of the famous COOPER-BESSEMER TYPE LS ENGINES

**FEATURING • Unequaled space, installation and operating economies • Compact 12 and 16 cylinder sizes • Up to 3,400 horsepower • Full diesel, gas, gas-diesel operation . . . supercharged or atmospheric**

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New York Washington Bradford, Pa. Parkersburg, W. Va. San Francisco, Cal. Seattle, Wash.

IT IS well known that users of Cooper-Bessemer *in-line* LS engines have profited by engine performance seldom equalled in the 800 to 1700 hp class.

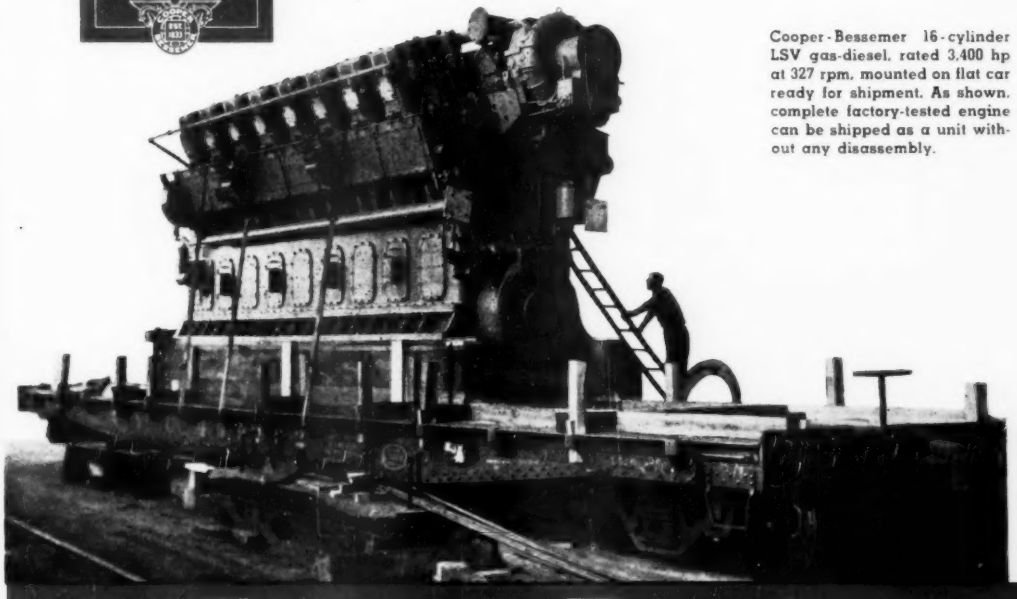
Now, the LS "V" design offers *double* the power in *practically the same space*, while retaining the exceptional stamina, high efficiency and low maintenance characteristic of LS operation. *Today, no comparable engine offers as favorable a power-to-space ratio.*

*Another Example of Efficient Power at Lower Cost*

The advantages are obvious. Total power requirements can be met with fewer or smaller engines, permitting big direct savings in the cost of buildings, foundations, installation, over-all operation and maintenance.

Like the in-line LS, the LSV is built as a full diesel, gas-diesel or spark-ignited gas engine. If your interest lies in full or partial gas operation, bear in mind that Cooper-Bessemer gas-diesels offer exceptional efficiency over the *entire* load range... and that Cooper-Bessemer spark-ignited gas engines can now be supercharged, permitting sensational new economies compared with ordinary gas engines.

So if your power requirements fall in the 2,500 to 3,400 hp range, don't fail to check with the nearest Cooper-Bessemer office on the LSV.



Cooper-Bessemer 16-cylinder LSV gas-diesel, rated 3,400 hp at 327 rpm, mounted on flat car ready for shipment. As shown, complete factory-tested engine can be shipped as a unit without any disassembly.

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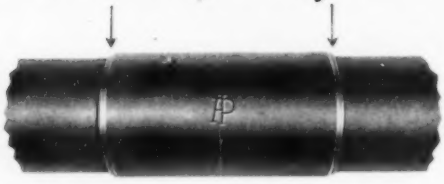

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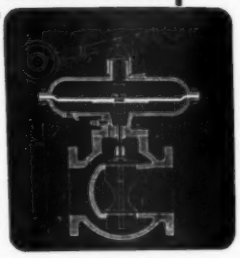

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Humble Oil & Refining Co. 1 Pelican Island State Lease Account 1, Block 30, Tract 1202, Block 30 of the West Delta area, offshore, TD 7,500 ft., sand, 2,169-83 ft., IP 28,200 cu. ft. gas.

**POINTE A LA HACHE.**—Plaquemines, February; S. W. Richardson 1-E Humble-Morgan City Land & Fur Co., 2-17s-14e, TD 10,972, sand, 10,677-82 ft., IP 358 bbl., gravity 34°.

**RABBIT ISLAND.**—Iberia, September; Texas Co. 14 State Lease 340-Rabbit Island, TD 10,705 ft., sand 8,824-50 ft., IP 292 bbl., 36.5° gravity.

**SHIP SHOAL, BLOCK 28 (offshore).**—Terrebonne, July; Kerr-McGee Oil Industries, Inc., State Lease 750, TD 13,975 ft., sand, 8,482-90 ft., IP 69 bbl. distillate, plus 3,460 M.c.f. gas.

**SOUTH TIGRE LAGOON.**—Iberia, September; Union Oil Co. of California 1 State Lease 1,700, 2-14s-5e, TD 11,761 ft., sand, 11,400-15 ft., IP 29 bbl. distillate plus 1,650 M.c.f. gas.

**SOUTH TIMBALIER AREA.**—Terrebonne, March; Humble Oil & Refining Co. 1 South Timbalier, State Lease 1027, Account 1, Tract 1176, Block 34, TD 9,926 ft., sand, 9,550-58 ft., IP 456 bbl., gravity 39.6°.

**SPRINGVILLE.**—Livingston, February; Danciger Oil & Refining Co. 1 Myrtle E. Smiley, 9-7s-5e, TD 8,748 ft., Catahoula, 8,006-07 ft., IP 109 bbl., gravity 43.5°.

**VERMILION AREA (BLOCK 76).**—Vermilion, May; Superior Oil Co. C-1 Gulf of Mexico-State Lease 1106, Block 76, offshore, TD 11,603 ft., sand, 7,415-30 ft., IP 12 bbl. condensate and 7,565 M.c.f. gas.

**VERMILION AREA (BLOCK 39).**—Vermilion, June; Pure Oil Co. 1-B State Lease, Block 39, offshore, TD 10,379 ft., sand, 8,195-8,220 ft., IP 53 bbl. condensate and 1,049 M.c.f. gas.

**WEST BIVENS.**—Beauregard, August; Atlantic Refining Co. A-1 Sabine River Lumber Co., 24-5s-13w, sand, 9,304-23 ft., TD 9,586 ft., IP 230 bbl., 39.6° gravity.

**WEST CAMERON (BLOCK 149) (offshore).**—Cameron, September; Superior Oil Co. A-1 Gulf of Mexico-State B-Lease, TD 9,380 ft., sand, 7,150-60 ft., IP 7 bbl. distillate plus 3,355 M.c.f. gas.

**WEST CAMERON (BLOCK 33) (offshore).**—Cameron, August; Kerr-McGee Oil Industries, Inc., 1 State Lease 1,123, Block 33, TD 13,282 ft., sand 10,390-10,408 ft., IP 934 bbl., 42.3° gravity.

**WEST CAMERON (BLOCK 45).**—Cameron, May; Stanolind Oil & Gas Co. 1 Louisiana State Lease 1,133, Block 45, offshore, sand, 8,738-48 ft., TD 8,814 ft., IP 40 bbl., 51.5° gravity.

**UNNAMED.**—Acadia, May; Callery & Hurt 1 Henry Goss, 13-7s-1e, TD 8,755 ft., sand, 8,497-8,503 ft., IP 185 bbl., 36° gravity.

**UNNAMED.**—Acadia, September; P. A. Ward Co. 1 Winnifred B. Vincent, 14-7s-1w, Miocene, 3,681-86 ft., TD 4,032 ft., IP 74 bbl., 25° gravity.

**UNNAMED.**—Calcasieu, November; Niloco Co. 2 Industrial Lumber Co., 2-8s-11w, sand, 6,654-64 ft., TD 6,750 ft., IP 239 bbl., 29.5° gravity.

**UNNAMED.**—Iberville, July; Callery & Hurt and Phillips Petroleum Co. 1 Repp, 79-9s-11e, TD 11,300 ft., sand, 10,890-11,027 ft., IP 414 bbl. distillate plus 1,725 M.c.f. gas.

**UNNAMED.**—Jefferson Davis, August; Continental Oil Co. 1 R. A. Estes, 11-9s-5w, TD 11,474 ft., sand, 11,374-87 ft., IP 72 bbl. distillate plus 2,453 M.c.f. gas.

**UNNAMED (offshore).**—Plaquemines, November; Humble Oil & Refining Co. A-3 T.P. State Lease 818, Tract 1,199, West Delta Block, TD 10,900 ft., sand, 9,475-80 ft., IP 25 bbl. distillate plus 734 M.c.f. gas.

**UNNAMED.**—Plaquemines, September; Gulf Refining Co. State QQ Black Bay, 17s-17e, sand, 10,095-10,102 ft., TD 10,212 ft., IP 86 bbl. distillate plus 5,400 M.c.f. gas.

**UNNAMED.**—St. Landry, August; Atlantic Refining Co. 1 Albert Meche, 9-7s-3e, TD 9,898 ft., sand, 9,474-82 ft., IP 45 bbl. distillate.

**UNNAMED.**—Terrebonne, November; Shell Oil Co. 1 Continental Land & Fur Co., Inc., Castell area, 32-17s-14e, TD 12,002 ft., sand, 11,980-88 ft., IP 65 bbl. distillate.

**UNNAMED.**—Vermilion, March; Hassie Hunt, Tr., 1 J. S. Broussard, 6-14s-1e, TD 12,636 ft., sand, 12,098-12,106 ft., IP 70 bbl., condensate and 1,667,000 cu. ft. gas.

## NEW PAYS

**ARNAUDVILLE.**—St. Martin, March; Union Sulphur Co., Inc., 1 Hefea Land Co., 38-8s-5e, TD 11,700 ft., pay 11,059-78 ft., IP 27 bbl. condensate.

**AVONDALE.**—Jefferson, November; Humble Oil & Refining Co. 1 Marrero Land and Implement Association, Ltd., 28-18s-22e, TD 9,345 ft., pay 7,750-53 ft., IP 159 bbl., 31.2° gravity.

**BAY BAPTISTE.**—Terrebonne, March; Union Producing Co. 2 State-Bay Baptiste Unit, 46-19s-19e, TD 12,749 ft., pay 8,955-68 ft., IP 4,200,000 cu. ft. gas and spray of condensate.

**BAY JUNOP DOME.**—Terrebonne, May; Union Oil Co. of California 2-9 State Lease 725-LL&E Unit, 27-21s-14e, TD 4,593 ft., pay 3,493-98 ft., IP 875 M.c.f. gas.

**BAY JUNOP.**—Terrebonne, June; Union Oil Co. of California 9-5 State Lease 725, 27-21s-14e, TD 4,560 ft., pay 4,500-04 ft., IP 84 bbl., 40.7° gravity.

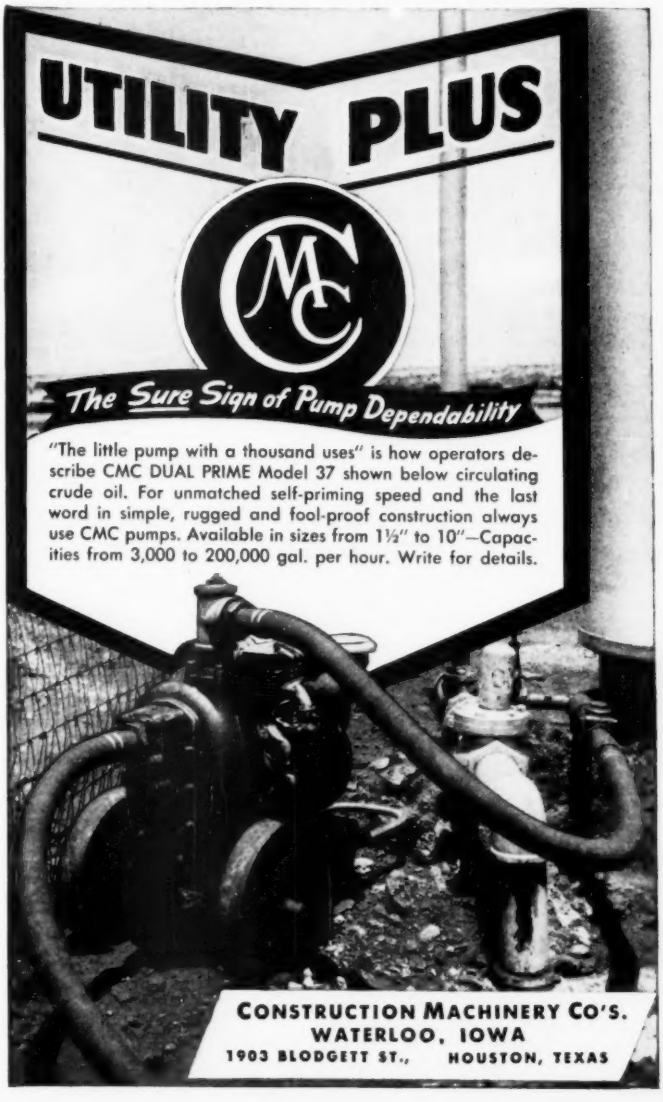
**BAY MARCHAND.**—Lafourche, April; California Co. 3 State Lease 1367, offshore, Block 3, TD 5,526 ft., pay 5,048-92 ft., IP 432 bbl., gravity 40°.

**BAY MARCHAND.**—Lafourche, June; California Co. B-3 Louisiana State Lease 1366, offshore, pay 3,900-25 ft., TD 5,034 ft., IP 324 bbl., 20.1° gravity.

**BAY MARCHAND.**—Lafourche, March; California Co. 2 Louisiana State Lease 1367, offshore, TD 5,703 ft., pay 5,020-24 ft., 5,039-47 ft., 5,050-59 ft., and 5,061-66 ft., IP 320 bbl., gravity 40.9°.

**BLOCK 32.**—Terrebonne, April; Kerr-McGee Oil Industries, Inc., 2 State Lease 755, Block 33, offshore, TD 3,344 ft., pay 2,663-78 ft., IP 312 bbl., gravity 29°.

**CAILLOU ISLAND.**—Terrebonne, June; Texas Co. 1 State Lease 301-Woods Unit 1,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25-23s-19e, TD 12,417 ft., pay 9,990-10,008 ft., IP 238 bbl., 46.2° gravity.

**CAMINADA PASS.** — Jefferson, May; Humble Oil & Refining Co. 1 Caminada Pass State Lease 804-D, Tract 1121, Block 23, offshore, TD 6,380 ft., IP 52 bbl., pay 6,128-38 ft., 29.7° gravity.

**DUCK LAKE.**—St. Martin, June; Humble Oil & Refining Co. B-1 R. H. Goodrich et al, 2-15s-11e, pay 11,470-75 ft., TD 11,747 ft., IP 421 bbl., 33° gravity.

**DUCK LAKE.**—St. Martin July; Hunt Oil Co. et al 1 State Lease 1,392—Goodrich Unit 1, 2-15s-11e, TD 13,595 ft., pay 12,404-07 ft., IP 6,000 M.c.f. gas.

**EGAN.**—Acadia, February; Sun Oil Co. and Sohio Oil Co. 1 Limbocker Unit, 38-9s-1w, TD 10,758 ft., Miocene, 10,104-08 ft., IP 138 bbl., gravity 38.5°.

**FOUR DOME ISLE.**—Terrebonne, April; Superior Oil Co. 5-12 LLE-State Unit, 24-21s-16e, TD 11,827 ft., pay 11,140-52 ft., IP 327 bbl., 34° gravity.

**FOUR ISLE DOME.**—Terrebonne, April; Superior Oil Co. 3 Louisiana Land & Exploration Co., Unit 14, 23-21s-16e, TD 14,564 ft., pay 12,430-39 ft., and 12,452-68 ft., IP 197 bbl. condensate and 6,538,000 cu. ft. gas.

**FORDOCHE.**—Pointe Coupee, March; Texas Co. 2 Cleland W. Dearing et al, 20-6s-8e, TD 9,037 ft., pay 8,607-14 ft., IP 206 bbl., gravity 39.9°.

**FORDOCHE.**—Pointe Coupee, May; Texas Co. 2 J. O. Long et al, 29-6s-8e, TD 10,000 ft., pay 8,197-8,207 ft., IP 310 bbl., 36.6° gravity.

**FORDOCHE.**—Pointe Coupee, August; Texas Co. 3 J. O. Long et al, 29-6s-8e, TD 9,600 ft., pay 8,798-8,802 ft., IP 155 bbl., 38.5° gravity.

**IOWA.**—Calcasieu, July; Magnolia Petroleum Co. 1 Bowman, 12-9s-7w, TD 11,800 ft., pay 10,202-07 ft., IP 110 bbl., 45.1° gravity.

**LEEVILLE.**—Lafourche, February; Texas Co. 6 City of New Orleans, 35-21s-22e, sidetracked TD 13,820 ft., pay 13,360 ft., IP 49 bbl. condensate.

**LOTTIE.** — Pointe Coupee, December; Texas Co. 2 Lottie Land & Development Co., 25-6s-8e, TD 10,260 ft., pay 9,130-32 ft., IP 271 bbl., 41.8° gravity.

**PERKINS.**—Calcasieu, October; North American Oil Consolidated 7 Edgewood Land & Logging Co., 31-7s-10w, TD 7,411 ft., pay 6,674-78 ft., IP 276 bbl., 28° gravity.

**POINT A LA HACHE.**—Plaquemines, July; Sid W. Richardson 1-E Humble-Delacroix State 1212, 34-16s-14e, TD 11,185 ft., pay 8,838-42 ft., IP 93 bbl., 34.6° gravity.

**POINTE AU FER.**—Terrebonne, February; Texas Co. 1 Point Au Fer Unit 1, 35-20s-11e, TD 11,500 ft., pay 9,862-66 ft., IP 75 bbl. condensate.

**SHIP SHOAL (BLOCK 32).**—Terrebonne, July; Kerr-McGee Oil Industries B-4 State Lease 752, offshore, TD 3,495 ft., pay 3,168-83 ft., IP 120 bbl., 30.1° gravity.

**SOUTH BAYOU MALLET.**—Acadia, September; Union Sulphur Co. 1-A Richard Unit, 25-7s-1e, TD 9,651 ft., pay 9,177-82 ft., IP 62 bbl., 30° gravity.

**WEEKS ISLAND.**—Iberia, July; Shell Oil Co. 2 Smith-State Unit "C," 18-14s-7e, TD 13,839 ft., pay 13,728-43 ft., IP 378 bbl., 34° gravity.

**WEEKS ISLAND.**—Iberia, March; Shell Oil Co. 4 Smith-State Unit "E," 18-14s-6e, TD 14,900 ft., pay 14,015-25 ft., IP 410 bbl., gravity 34°.

## ARKANSAS

### NEW POOLS

**CECIL**—Franklin, September; Arkansas-Louisiana Gas Co. 1 Ralph S. Barton, SE SE NW 27-9n-28w, Hale 4,850-4,930 ft., IP 7,000,000 cu. ft. dry gas.

**DYKESVILLE**—Webster, January; Barnsdall Oil Co. 1 Robert Sykes, NW NW 1-22n-9w, Pettit 5,654-98 ft., IP 205 bbl.

**LOUTRE CREEK**—Union, April; Macmillan Petroleum Corp. 1 C. Nash, SE NW 35-18s-15w, Smackover 7,769-72 ft., IP 125 bbl.

**PINE TREE**—Columbia, January; Lion Oil Co. 1 Story, NE SE 20-18s-19w, Smackover 8,426-33 ft., IP 555 bbl.

**SOUTH LARTO LAKE**—Catahoula, October; Hunt Oil Co. 5 Louisiana Delta, SW NE 23-4n-5e, Wilcox 3,835-40 ft., IP 23 bbl.

**UNNAMED**—Columbia, July; McAlester Fuel Co. 1-A T. O. Giles, NW NE 6-18s-18w, Smackover 7,766-71 ft., IP 78 bbl.

**UNNAMED**—Columbia, December; McAlester Fuel Co. 1-A Phillips-Shocklee, NE SW 33-16s-19w, Smackover 7,394-7,402 ft., IP 25 bbl. distillate.

### NEW PAYS

**NORTH STEPHENS**—Nevada, August; H. T. Pannell 1 Bannister, SE SE NE 1-15s-20w, James 2,932-38 ft., IP 240 bbl.

**STEPHENS**—Columbia, July; Burnett Drilling Co. 1 Kate Curry, SW SW SW 5-15s-19w, Travis Peak 3,608-20 ft., IP 432 bbl., north extension.

**STEPHENS**—Ouachita, April; Zach Brooks Drilling Co. 1 S. J. Hamilton, NW SW NE 19-15s-19w, Hogg sand 3,243-53 ft., IP 432 bbl.

## MISSISSIPPI

### NEW POOLS

**BUDE**—Franklin County, February; Barnsdall Oil Co. 1 J. Pittman, SW NW 29-5n-4e, TD 11,308 ft., IP 356 bbl., 43.8° gravity, Marine Tuscaloosa 10,654 ft., Lower Tuscaloosa 11,024 ft., Massive 11,238 ft., Lower Cretaceous 11,246 ft.

**JUDGE GEORGE ARMSTRONG**—Adams County, May; Sohio Petroleum Co., Hunter Jones and Kemp Drilling Co. 1 George Armstrong, 36-5n-3w, top sand 6,467 ft. (Armstrong), TD 6,520 ft., IP 360 bbl., 38° gravity.

**PAINE**—Greene County, April; Humble Oil & Refining Co. 1 F. J. Hubbard, 3-4n-8w, TD 8,503 ft., IP 46 bbl. on pump, 24.6° gravity, top lower Tuscaloosa 7,804 ft., Massive 8,220 ft., lower Cretaceous 8,340 ft.

**POSSUM CORNER**—Wilkinson County; December; Danciger Oil & Refining Co. 2 G. W. Armstrong, 5-4n-2w, top sand 5,083 ft., TD 8,307 ft., IP 36 bbl. plus 625 M.c.f. gas, 30° gravity.

**RODNEY**—Jefferson County, August; Danciger Oil & Refining Co. 1 Mrs. Kate S. Logan, 18-10n-1w, top sand 9,452 ft., TD 9,456 ft., IP 62 bbl. distillate, plus 875 M.c.f. gas, 52° gravity.

**ROXIE**—Franklin County, March; Vaughey & Vaughey 1 J. M. Seab, 12-6n-2e, TD 10,822 ft., dual completion: Casing well, through perforations 10,623-25 ft. flowed 75 bbl. per day through 10/64-in. choke, 40.2° gravity. Tubing well, through perforations from 10,703-05 ft. flowed 42 bbl. of 39.2°-gravity oil per day through 5/64-in. choke, top Lower Tuscaloosa 10,606 ft., sand stringer 10,621-27 ft., Massive 10,698 ft.

**RUSSUM**—Jefferson County, October; Stanolind Oil & Gas Co. 1 J. B. Dockery, 17-10n-2e, top sand 9,768 ft., TD 9,952 ft., IP 35 bbl.

**SHERROD**—Jones County, October; Red Wing Drilling Co. et al., 1 Torry Smith, 32-10n-11w, top sand 5,505 ft., TD 6,952 ft., IP 40 bbl. distillate plus 7,500 M.c.f. gas, 10/64-in. choke, 58° gravity, TP 2,090 psi.

## TENNESSEE

### NEW POOLS

**BELLBUCKLE AREA**—Bedford, September; Dodson & Kerr 1 Z. T. Crouch, SW NE NE 25-11s-39e, oil discovery, TD 74 ft.

**GLENMARY AREA**—Morgan, February; Russell Producing Co. 2 Fee, SE SW NW 15-3s-59e, oil discovery, TD 1,415 ft.

**NUBIA AREA**—Sumner, January; W. B. Dye 1 Mary Scott, NW NE SE 8-B-38e, oil discovery, TD 500 ft.

**SUNBRIGHT AREA**—Morgan, April; Taylor & Shoemaker 1 Russell Producing Co., NE NE NW 15-3s-59e, oil discovery, TD 1,734 ft.

**WEAVER'S BOTTOM AREA**—Clay, May; Brown & Davis 1 W. R. Weaver, SW SW SE 24-A-4Be, oil discovery, TD 700 ft.

## FLORIDA

### NEW POOL

**UNNAMED**—Collier, March; Humble Oil & Refining Co. B-2 Lee Tidewater Cypress Co., SE NW 13-48s-29e, TD 11,585 ft., IP 519 bbl., 26.4° gravity.

## OKLAHOMA

### NEW POOLS

**APPERSON, SOUTHWEST.**—Osage, August; Oliphant et al., 2 Cross, W/2 SE 18-26n-5e, Layton, 2,372-86 ft., IP 20 bbl., TD 2,386 ft.

**ATWOOD, NORTH.**—Hughes, October; Coronado and Bradshaw 1 Stephenson, NE NE NW 15-6n-9e, Booch, 2,800-19 ft., IP 32 bbl., gravity 35°, TD 5,449 ft.

**BEBEE, SOUTHEAST.**—Pontotoc, August; McBride, Inc., 1 Braly Estate, NE NW NE 9-4n-5e, Viola, 2,052-59 ft., IP 315 bbl., gravity 37°, TD 3,361 ft.

**BENJAMIN.**—Hughes, April; Chapman 1 McKan, NE SE NE 14-8n-8e, Cromwell, 3,303-12 ft., IP 20 bbl., gravity 37°, TD 3,314 ft.

**BLAKELY, SOUTHEAST.** — Okfuskee, August; Mid-Continent Petroleum Corp. 1 Weehunt, NW SE SE 6-11n-11e, Wilcox, 3,752-60 ft., IP 60 bbl., gravity 42°, TD 3,760 ft.

**BRADLEY, EAST.** — McClain, August; Cities Service 1 Dacus, C NW SW 29-5n-4w, first Bromide sand, 11,180-11-675 ft., IP 88 bbl., gravity 44.2°, TD 11,760 ft.

**BURNETT, NORTHWEST.**—Pottawatomie, May; Derby 1 Bailey, NW SE NE 9-8n-2e, Hunton, 5,150-96 ft., IP 15 bbl., gravity 22.5°, TD 5,889 ft.

**BYNG, NORTHWEST.**—Seminole, March; Sohio Petroleum Co., Delaney, and Kadane 1 Ragland, SW SE NW 31-5n-6e, sand, 1,826-46 ft., IP 8,000,000 cu. ft. of gas, TD 1,826 ft.

**CHANDLER, EAST.** — Lincoln, April; Wegener 1 Logan, NW SE SE 10-14n-4e, Prue, 3,867-75 ft., IP 60 bbl., TD 3,887 ft.

**CIVET, SOUTH.**—Garvin, June; Howell 1 Webster, SE SE NW 5-3n-2e, sand, 3,140-51 ft., IP 20 bbl., TD 3,552 ft.

**COON CREEK, SOUTH.**—Oklahoma, May; Jordan 1 Lewisohn, SE SE SW 14-4n-10w, second Wilcox, 5,960-68 ft., IP 100 bbl., gravity 37.5°, TD 5,968 ft.

**DUSTIN, SOUTHEAST**—Hughes, September; Josephson & Autry 1 Meadors, NE SE SE 14-9n-12, lower Cromwell, 3,430-96 ft., IP 5,000,000 cu. ft. of gas, TD 3,496 ft.

**HAPPY VALLEY.**—Lincoln, February; Foster 1 Deacon, NE NE SW 25-17n-5e, Bartlesville, 3,414-30 ft., IP 45 bbl., gravity 40.6°, TD 3,430 ft.

**HEWITT, NORTHWEST.**—Carter, January; Continental Oil Co. 1 Head, SE SE SE 6-4s-2w, Tussy sand, 2,920-60 ft., IP 155 bbl., gravity 28°, TD 7,440 ft.

**HUNTER, NORTHWEST.**—Garfield, November; Oliphant 1 Hoover, NE SW SE 2-24n-5w, Marshall, 6,204-18 ft., IP 256 bbl., gravity 46°, TD 6,218 ft.

**KEYES, SOUTHEAST.**—Cimarron, August; Bay Petroleum Corp 1 Parkes, NE NE SW 34-4n-8ecm., Keyes, 4,765-4-819 ft., IP 52 bbl., TD 4,843 ft.

**LEWIS, NORTHWEST.** — Garvin, May; Lewis et al. 2 Lewis, SE SW SW 17-3n-3e, first Bromide sand, 2,085-90 ft., IP 59 bbl., TD 2,090 ft.

**LEXINGTON, NORTHEAST.**—Cleveland, July; Teepee Drilling Co. 1 Warner, C SE NE 4-6n-1w, sand, 6,548-63 ft., IP 36 bbl., gravity 46°, TD 6,655 ft.

**LINDSEY, SOUTHEAST.**—Garvin, March; Pary et al., 1 Pratt, NE NE SE 20-4n-3w, Gibson sand, 7,294-7,312 ft., IP 130 bbl., gravity 41°, TD 10,228 ft.

**LONG, NORTH.** — Hughes, September; Delaney, Jr., 1 Logsdon, NW SE NW 2-8n-9e, Cromwell, 3,317-30 ft., IP 32 bbl., gravity 38°, TD 3,330 ft.

**LOVELL, NORTH.**—Logan, April; Snowden 1-A Fry, C NW NW 4-18n-4w, Tonkawa, 4,049-59 ft., IP 51 bbl., gravity 42.6°, TD 4,962 ft.

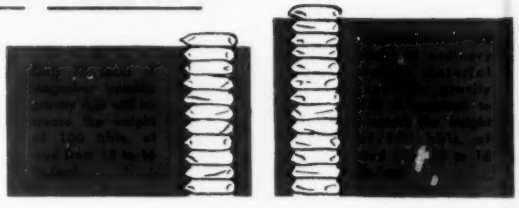
**McALESTER, EAST.**—Pittsburgh, September; Intex Oil 1 Welsh unit, C NW SW 35-6n-15e, sand, 1,164-85 ft., IP 1,400,000 cu. ft. of gas, TD 2,010 ft.

**MARLOW, SOUTHEAST.**—Stephens, January; Tide Water et al., 1 South Marlow unit, C SE SW 27-2n-7w, Pennsylvanian sand, 7,902-10 ft., IP 370 bbl. of distillate, gravity 59°, TD 11,575 ft.

**MORSE, NORTHEAST.**—Okfuskee, April; Portable 1 Harge, NW SE NE 31-13n-10e, Gilcrease, 2,884-96 ft., IP 9 bbl. and 7,000,000 cu. ft. of gas, TD 2,898 ft.

# MAGCOBAR LOWERS MUD COSTS BECAUSE FEWER SACKS ARE NEEDED!

When increased weight is the problem, experience in the field has confirmed laboratory proof that muds weighted with Magcobar have a lower viscosity and are much easier to control than muds weighted with other materials. Magcobar can be used in all types of muds. The superior properties of this specially prepared barium sulphate are most evident in very high weight muds; however, its use will result in substantial savings in all muds. Look for the Magcobar sign as your guide to lower mud costs. More than 250 Magcobar Dealers from Canada to the Gulf Coast are ready to serve you.



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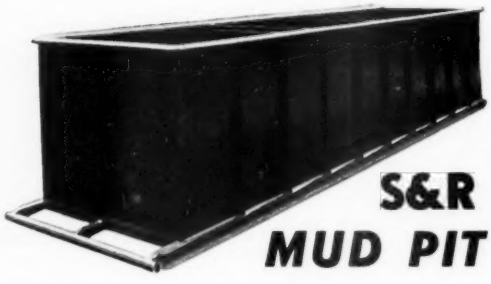

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Standard pits are 6 feet deep, 30 feet long, 7′ 6″ wide and have a capacity of 234 barrels. Bottoms are ¼″ steel plate; sides of 3/16″ or ¼″ as specified. Heavy reinforcing . . . 3″ channel iron ribs on 36″ centers . . . provides utmost strength and rigidity along the sides. Top cross braces are above the mud level in the tank, so that the interior is absolutely free of obstructions. A clean-out plate is furnished at one end.

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**MORVIN, WEST.**—Pottawatomie, January; Cities Service 1 Fleming, NW SW SW 31-9n-3e, Hunton, 4,966-76 ft., IP 40 bbl., TD 5,025 ft.

**MOUNT HOPE, NORTHWEST.**—Payne, February; Texas 1 School Land "J," NE NE NE 36-19n-3e, Red Fork, 3,754-67 ft., IP 118 bbl., gravity 39°, TD 3,767 ft.

**OCONEE, EAST.**—Coal, June; Robertson 1 Daniel, SW NE SW 27-1n-9e, sand, 6,915-75 ft., IP 2,000,000 cu. ft. of gas, TD 7,218 ft.

**PALACINE, NORTHEAST.** — Stephens, August, Kingery et al., 1 Weedn, SW SW SE 3-2s-6w, dolomite, 4,776-4,863 ft., IP 85 bbl., gravity 39.5°, TD 4,868 ft.

**PALACINE, SOUTH.**—Stephens, April; Jackson 1 Hughes, SW SE SE 16-2s-6w, sand, 2,686-94 ft., IP 52 bbl., gravity 38°, TD 2,694 ft.

**PANTHER CREEK, SOUTH.** — Garvin, February; Davon 1 Layton, SE SW SE 36-3n-3w, Hartshorne sand, 7,308-32 ft., IP 115 bbl. of distillate, gravity 63°, TD 7,430 ft.

**PAOLI, SOUTHWEST.**—Garvin, July; Myers et al., 1 Trudgeon, NW SW SW 14-4n-1w, sand 4,428-36 ft., IP 77 bbl., gravity 43.4°, TD 4,716 ft.

**PECAN GROVE.**—Hughes, February; Murta 1 Davis, SW SW NW 20-8n-9e, Cromwell, 3,321-36 ft., IP 130 bbl. of distillate, TD 3,336 ft.

**PIONEER, EAST.**—Osage, April; Waite Drilling et al., 2 Massingale, NE NW NW 3-20n-11e, Hominy-Tyner sand, 2,258-2,345 ft., IP 65 bbl., TD 2,392 ft.

**PRAGUE, WEST.**—Lincoln, February; Huber 1 Tierney, NE NE NW 30-12n-6e, Wilcox, 4,701-11 ft., IP 50 bbl., gravity 19°, TD 4,711 ft.

**PRAIRIE VIEW.**—Payne, June; Qiunlan 1 Lowe, NE NW SW 21-19n-1w, Skinner, 4,911-20 ft., IP 20 bbl., gravity 43°, TD 4,962 ft.

**RABBIT CREEK, WEST.**—Cotton, June; Ross 1 Eastman "B," NE SE NE 17-5s-12w, sand, 1,754-65 ft., IP 27 bbl., gravity 41°, TD 1,787 ft.

**RAMSEY, NORTHEAST.**—Payne, May; Fisher 1 Flohr, SE SW NW 5-18n-2e, Skinner, 4,386-96 ft., IP 50 bbl., gravity 37.6°, TD 4,414 ft.

**RED HILL.**—Pottawatomie, May; Davon et al., 1 Santa Fe Gun Club, NW NW SE 26-11n-4e, unconformity, 4,790-4,819 ft., IP 12 bbl., gravity 35.5°, TD 5,578 ft.

**REMINGTON, (REVIVED).**—Usage, January; Oliphant 1 Dellaplain, SE SW SW 7-25n-6e, Mississippia chat, 2,90-74 ft., IU 67 bbl., gravity 41.5°, TD 2,974 ft.

**RENFROW, EAST.**—Grant, May; Cities Service 1 Pratt, NE SE NE 6-28n-3w, Wilcox, 4,970-75 ft., IP 162 bbl. of distillate, gravity 50.5° TD 4,975 ft.

**RICH VALLEY.**—Grant, March; Viersen 1 Vollmer, NE NE NE 1-25n-5w, first Wilcox, 5,828-63 ft., IP 190 bbl., gravity 40°, TD 5,848 ft.

**RICHARDS, SOUTHWEST.** — Comanche, April; Melida 1 Koetter, SW SW SW 32-4n-10w, sand, 544-66 ft., IP 4 bbl., gravity 33°, TD 956 ft.

**RINGWOOD, WEST.**—Major, June; Mazda 1 Boehs, NE SW SE 30-22n-10w, Manning sand, 6,789-6,800 ft., IP 82 bbl., gravity 40°, TD 6,898 ft.

**ROADY, NORTHEAST.**—Garvin, August; Stanolind Oil ¾ Gas Co. 1 Richardson unit, SW SE NE 1-1n-1w, second Deese sand, 4,532-89 ft., IP 80 bbl., gravity 27°, TD 2,664 ft.

**ROBBERSON, SOUTHEAST.** — Garvin, May, Tide Water 1 Culpin, SW SE NE 31-1n-2w, sand 711-80 ft., IP 32 bbl., gravity 31°, TD 927 ft.

**ROSENWALD.**—Okfuskee, June; Falcon-Seaboard 1 Sarnia, SE SE SW 14-13n-8e, Cromwell, 3,440-45 ft., IP 10 bbl., gravity 38°, TD 3,445 ft.

**RUSK, NORTHWEST.**—Okfuskee, November; Crosbie, Inc., 1 Cosgrove, NE NW SW 1-11n-7e, Hunton, 4,238-59 ft., IP 287 bbl., TD 4,259 ft.

**SHOLEM ALECHEM, WEST.**—Stephens, April; Davon 1 Rue, NW SW NE 22-1s-4w, Hoxbar sand, 3,542-74 ft., IP 71 bbl., TD 5,392 ft.

**SYLVIAN, EAST.**—Seminole, May; King 1 Kelly, NW SW NE 12-10n-7e, Union Valley sand, 3,605-17 ft., IP 45 bbl., TD 3,625 ft. (dry hole in 1948).

**TRANSCO, EAST.**—Seminole, June; Ashland 1 Force, NW NE NW 26-7n-7e, lower Calvin, 1,747-57 ft., IP 15 bbl., gravity 38°, TD 1,757 ft.

**TRYON, NORTHWEST.**—Lincoln, October; Diehl 1 Hall, NE SE NW 10-16n-3e, Red Fork, 4,140-53 ft., IP 75 bbl., gravity 39.5°, TD 4,262 ft.

**UNION POINT.**—Pottawatomie, January; Sadler 1 Gaddy, NW NW SE 21-10n-2e, Wilcox, 5,986-98 ft., IP 270 bbl., gravity 37.8°, TD 6,078 ft.

**VALLEY GROVE, NORTHEAST.**—Okfuskee, October; Armer & Cullinan Petroleum Co. 1 Seran, SW NE SW 30-13n-9e, Dutcher, 3,420-60 ft., IP 30 bbl., gravity 37°, TD 4,120 ft.

**WANETTE, EAST.**—Pottawatomie, April; Aston 1 Neal, NE SE NE 30-6n-3e, Layton, 3,106-24 ft., IP 35 bbl., TD 4,625 ft.

**WELTY, SOUTHWEST.**—Okfuskee, January; Falcon-Seaboard 1 Palmer, NE NW NW 13-13n-8e, Union alley-Cromwell, IP 112 bbl., gravity 39°, TD 3,436 ft.

**WITCHER, EAST.**—Oklahoma, June; Gulf Oil Corp. 1 Perkins, C SW SE 34-13n-2w, lower conglomerate, 5,539-55 ft., IP 2,612,000 cu. ft., of dry gas, TD 6,245 ft.

**YALE, SOUTHWEST.** — Payne, April; Berry 1 O'Keefe, NW SE NW 26-19n-5e, Peru, 2,804-15 ft., IP 20 bbl., TD 2,816 ft.

**UNNAMED** — Caddo, October; Cleary & Smith 1 Young, SW NW NW 38-5n-12w, sand 241-54 ft., IP 50,000 cu. ft. of gas, TD 754 ft.

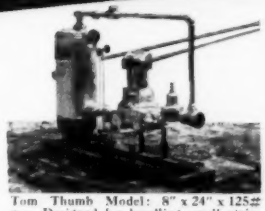
**UNNAMED**—Canadian, January; Ashland 1 Maidment, C SE SE 11-14n-5w, Bartlesville, 6,864-84 ft., IP 80 bbl. of distillate, TD 6,884 ft.

**UNNAMED** — Carter, October; Shell Oil Co. 1 Bristow, SE SW 20-3s-3w, IP 119 bbl., gravity 37°, TD 11,953 ft.

**UNNAMED** — Carter, December; McCasland 1 McClure, SE SW SE 15-5s-1e, sand, 3,840-70 ft., IP 48 bbl., TD 6,340 ft.


# ROLO WELLCHECKERS

**Permanent and Portable Oil and Gas Separators**



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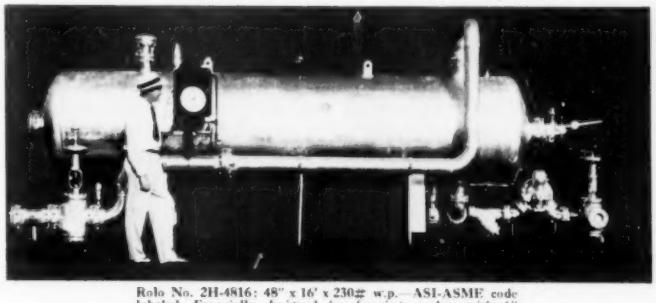

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**UNNAMED**—Carter, June; Lewis 1 Fulton, NE NW SW 1-5s-2w, sand, 4,744-80 ft., IP 133 bbl., gravity 37.2°, TD 4,909 ft.

**UNNAMED**—Carter, July; Sun 1 Miller, SW SE NW 8-1s-3w, sand, 5,908-83 ft., IP 126 bbl., gravity 37.5°, TD 6,586 ft.

**UNNAMED**—Carter, July; Rock Hill 1 Moyer-Scrivner, SE NW NW 1-5s-2w, Lone Grove sands, 4,262-78 ft., IP 15 bbl., gravity 35°, TD 4,300 ft.

**UNNAMED**—Cleveland, October; Teepee Drilling Co. 1 Warner "A," C NE SW 4-6n-1w, sand, 6,581-6,606 ft., IP 8 bbl., gravity 49.4°, TD 6,608 ft.

**UNNAMED**—Comanche, March; Tice 1 Hoskins, NE NW NW 8-1n-10w, sand, 300-10 ft., IP 6 bbl., gravity 37°, TD 310 ft.

**UNNAMED**—Cotton, May; Ross 2 Hall "A," NW NW NW 16-5s-12w, sand, 1,766-72 ft., IP 70 bbl., TD 1,774 ft.

**UNNAMED**—Cotton, July; Graham 1 Bates, SE NE NE 20-3s-11w, sand, 1,571-85 ft., IP 10 bbl., gravity 35°, TD 1,585 ft.

**UNNAMED**—Creek, November; H & H Development Co. 1 Fisher, NW NW SE 31-15n-10e, Red Fork, 2,205-25 ft., IP 8 bbl., gravity 38°, TD 3,424 ft.

**UNNAMED**—Garvin, April; Sohio Petroleum Co. 1 Moore, C NW NW 17-4n-3w, first bromide sand, 9,630-56 ft., IP 635 bbl., gravity 42°, TD 10,685 ft.

**UNNAMED**—Garvin, June; Davon 1 State, SE NW SW 36-3n-3w, Hartshorne sand, 7,426-51 ft., IP 240 bbl. of distillate, gravity 58°, TD 7,580 ft.

**UNNAMED**—Grady, October; Caraway 1 Drewrey, C SE NE 33-3n-7w, sand, 2,788-2,800 ft., IP 15 bbl., gravity 24°, TD in whipstocked hole 2,808 ft.

**UNNAMED**—Hughes, August; Mid-Continent Petroleum Corp. 1 McCosar, SW SW NE 14-8n-10e, Cromwell, 3,250-64 ft., IP 9 bbl. of distillate, TD 3,293 ft.

**UNNAMED**—Hughes, January; Brosius 1 Moore, NE SE NE 4-6n-8e, Booch, 2,773-2,811 ft., IP 50 bbl., TD 2,811 ft.

**UNNAMED**—Hughes, February; Mohawk Drilling Co. 1 Biffle, NE SE SW 34-9n-10e, Booch, 2,272-91 ft., IP 1,000,000 cu. ft. of gas, TD 3,153 ft.

**UNNAMED**—Hughes, May; Delaney 1 Long heirs, NE NE NE 14-8n-9e, limy sand and sandy shale, 3,131-46 ft., IP 7,200,000 cu. ft. of gas, TD 3,146 ft.

**UNNAMED**—Hughes, June; Broyles 1 Scott, NE SE NE 4-7n-8e, Earlsboro, 2,438-73 ft., IP 6 bbl., TD 3,234 ft.

**UNNAMED**—Jefferson, October; Wolfe 1 Lowrey, NE SE NE 18-3s-5w, lime and sand, 1,040-1,110 ft., IP 60 bbl., gravity 21°, TD 2,048 ft.

**UNNAMED**—Kay, December; Morgan 1 Kales, N 2 NE SW 20-27n-4e, Bartlesville, 3,196-3,236 ft., IP 10 bbl. plus 1,000,000 cu. ft. of gas, TD 3,238 ft.

**UNNAMED**—Kiowa, January; Miller 2 Irwin, W 2 NE NW 12-6n-16w, sandy lime, 93-106 ft., IP 2 bbl., gravity 30°, TD 107 ft.

**UNNAMED**—Lincoln, May; Creekmore-Ronney 1 Nickell, NW NW SW 19-14n-6e, Prue, 3,343-3,421 ft., IP 35 bbl., gravity 43°, TD 3,421 ft.

**UNNAMED**—Love, March; Cox 1 Strozier, SE SE NE 27-6n-2w, sand, 6,986-7,014, IP 132 bbl., gravity 35°, TD 7,250 ft.

**UNNAMED**—Major, July; Mazda 1 Farnsworth, NE NW NW 2-21n-10w, Manning, 6,762-6,856 ft., IP 246 bbl., gravity 39.2°, TD 6,895 ft.

**UNNAMED**—Major, November; Mazda 1 Lawson, NE SE SE 29-22n-10w, Manning, 6,775-6,850 ft., IP 125 bbl., TD 6,890 ft.

**UNNAMED**—Major, November; Andrade III 1 School Land, NE SE NE 36-22n-11w, Manning, 6,790-6,900 ft., IP 102 bbl., gravity 38°, TD 6,943 ft.

**UNNAMED**—Murray, June; Rinehart 1 Hassen, SE SW NE 24-2n-3e, sand, 688-742 ft., IP 4 bbl., gravity 25°, TD 742 ft.

**UNNAMED**—Noble, April; Mazda 1 Hoppe, SE SE NW 23-22n-2w, Mississippi lime, 4,823-42 ft., IP 17 bbl., gravity 42°, TD 5,186 ft.

**UNNAMED**—Okfuskee, October; Aurora Gasoline 1 Gragg heirs, SE SW SE 19-12n-7e, Red Fork, 3,320-40 ft., IP 87 bbl., gravity 40°, TD 3,340 ft.

**UNNAMED**—Oklahoma, January; Fisher 1 Woloszyn, NE NE NW 34-13n-1e, conglomerate, 4,710-20 ft., IP 110 bbl., TD 4,723 ft.

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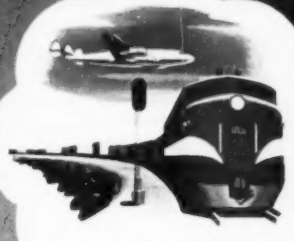

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MINING

PETROLEUM

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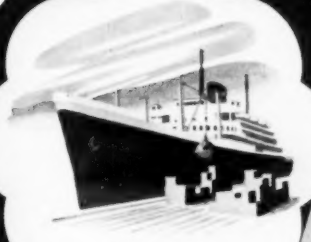

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CONSTRUCTION

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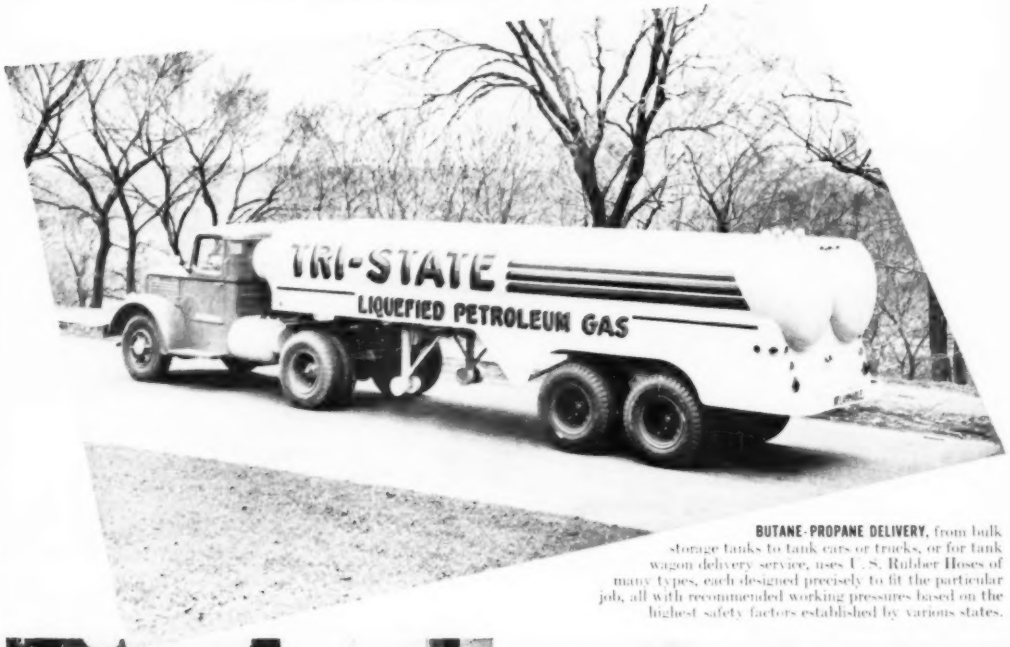
## OIL HOSES BY U. S. RUBBER PROVIDE SMOOTH CONVEYANCE IN EVERY PHASE OF THE OIL INDUSTRY

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**UNNAMED**—Oklahoma. May; Skelly Oil Co. 1 Corbin, NW SE SW 5-12n-2w, conglomerate, 5,602-30 ft., IP 40 bbl., TD 6,410 ft.

**UNNAMED**—Osage, March; Peters 1 Osage, NE NE SE 35-20n-11e, Hominy 2,240-69 ft., IP 4 bbl., TD 2,371 ft.

**UNNAMED**—Payne, May; Texas Co. 1 Fisher, SW SE SE 25-19n-3e, Red Fork, 3,764-94 ft., IP 90 bbl., TD 3,794 ft.

**UNNAMED**—Oklahoma, August; Peppers 1 Boles, NW NW SE 9-12n-2w, Misener and Bois d'Arc, 6,390-6,430 ft., IP 200 bbl., TD 6,485 ft.

**UNNAMED**—Oklahoma, October; An-Son Petroleum 1 McVickers, C NW NW 7-12n-1w, Bartlesville, 6,045-61 ft., IP 40 bbl., TD 6,061 ft.

**UNNAMED**—Okmulgee, October; Jackson 1 Beall, SW NE NW 23-11n-12e, sand, 1,246-51 ft., IP 4 bbl., TD 1,259 ft.

**UNNAMED**—Osage, September; Hilt 1 Osage, NE SE 7-22n-12e, Bartlesville, 1,657-72 ft., IP 5 bbl., TD 1,901 ft.

**UNNAMED**—Osage, August; Oliphant 1 Osage, NE NW NW 11-25n-8e, Mississippi chat, 2,331-78 ft., IP 24 bbl., TD 2,381 ft.

**UNNAMED**—Osage, December; Oliphant 1 Osage, SE SE SW 22-25n-3e, Layton, 2,669-82 ft., IP 75 bbl., TD 3,789 ft.

**UNNAMED**—Payne, October; Thompson & Berry 1 Strode, SW SE NW 15-18n-3e, Bartlesville, 3,967-80 ft., IP 80 bbl., gravity 39°, TD 3,980 ft.

**UNNAMED**—Payne, November; Morgan et al 1 Cundiff, SW SW NE 31-18n-2e, Skinner, 4,313-30 ft., IP 40 bbl., TD 4,330 ft.

**UNNAMED**—Pontotoc, March; Rinehart 1 Mayhue, SE SE NW 27-4n-6e, sand, 1,160-64 ft., IP 15 bbl., gravity 30°, TD 2,310 ft.

**UNNAMED**—Pontotoc, June; Grisso Oil Co. 1 Haney estate, SE SE NW 22-4n-7e, Senora sand, 736-62 ft., IP 8 bbl., TD 2,396 ft.

**UNNAMED**—Pontotoc, November; Garr-Wooley Oil Co. 1 Mercer, bromide sand, 1,790-1,800 ft., IP 20 bbl., gravity 30°, TD 2,000 ft.

**UNNAMED**—Pottawatomie, November; Sterling Oil Co. 1 White, NE SW NE 9-11n-6e, Hunton, 4,308-59 ft., IP 5 bbl., gravity 38°, TD 4,690 ft.

**UNNAMED**—Seminole, March; Gulf 1 Harris Foundation, SE SE NW 27-10n-7e, Booch, 3,444-59 ft., IP 54 bbl., gravity 38°, TD 3,617 ft.

**UNNAMED**—Seminole, June; Villines 1 Millsap, NW SW NW 30-7n-6e, Calvin, IP 5 bbl., gravity 40.1°, TD 2,504 ft.

**UNNAMED**—Seminole, July; McIntyre 1 Harjo, NE SE NW 35-9n-7e, Booch, 3,317-34 ft., IP 20 bbl., TD 3,445 ft.

**UNNAMED**—Seminole, July; Evans et al 1 Hobert, NE SE NW 12-10n-7e, Cromwell, 3,623-43 ft., IP 21 bbl., TD 3,648 ft.

**UNNAMED**—Seminole, November; Keener Oil & Gas 1 Norvell, SW SW NW 20-7n-7e, Calvin, 1,774-84 ft., IP 102 bbl., gravity 44°, TD 1,784 ft.

**UNNAMED.**—Stephens, May; Phillips 1 Feagin, C NW SW 18-1n-4w, sand, 8,038-8,106 ft., IP 196 bbl., gravity 36.1°, TD 8,712 ft.

**UNNAMED.**—Stephens, July; Texas 1 Creel, SW SW NW 3-1n-5w, Bromide and Tulip Creek sands, 11,322-11,673 ft., IP 9 bbl., gravity 43°, TD 11,673 ft.

**UNNAMED.**—Stephens, October; Atkinson 2 Patty, NE NW SE 27-2s-6w, sand, 1,830-77 ft., IP 21 bbl., gravity 38°, TD 2,803 ft.

**UNNAMED.**—Washita, June; Bauman & Pray 1 Proctor, C NW 28-10n-20w, granite wash, 10,030-14,582 ft., IP 5 bbl., gravity 48.5°, TD 14,582 ft., old well worked over.

**UNNAMED.**—Washita, July; Constantine 1 Lamberts, S 2 SW SW 18-10n-20w, conglomerate, 9,849-54 ft., IP 1,198 bbl. of distillate, gravity 52°, TD 10,417 ft.

### NEW PAYS

**AGRA, NORTHWEST.**—Lincoln, May; Fordee-Rhoades et al., 1-A Colon, NW NE EW 28-17n-4e, upper Bartlesville, 3,802-14 ft., IP 12 bbl., TD 4,374 ft.

**BEARDEN, EAST.**—Okfuskee, October; Mohawk Drilling Co. 1 McMahon, SW SE NW 14-10n-9e, Hunton, 3,783-3,827 ft., IP 34 bbl. distillate, TD 3,827 ft.

**BEBEE.**—Pontotoc, September; Delaney, Jr., 1 Ayers, SW SE NE 4-4n-5e, Calvin, 1,440-65 ft., IP 7,000,000 cu. ft. of gas, TD 1,465 ft.

**BOWLEGS.**—Seminole, January; Sadler 1 Miller, SE SE SW 18-8n-7e, Hunton lime, IP 110 bbl., TD 4,212 ft.

**BLAKELY, SOUTHEAST.**—Okfuskee, November; Mid-Continent Petroleum Corp. 7 Weehunt, NW NE SE 61--n-11e, Misener, 3,661-72 ft., IP 1,300,000 cu. ft. of gas, TD 3,760 ft.

**BLAKELY, SOUTHEAST.**—Okfuskee, November, Mid-Continent Petroleum Corp. 8 Weehunt, SW SE SE 6-11n-11e, Gilcrease, 2,837-41 ft., IP 50 bbl., TD 2,842 ft.

**BRADLEY, EAST.**—McClain, September; Cities Service 1 Dacus, NW NW SW 29-5n-4w, Chimney Hill, 10,254-10,314 ft., IP 212 bbl., pool opener plugged back.

**BRADLEY, NORTHEAST.**—Grady, April; Gulf Oil Corp. 1 Mainka, NW NW NE 12-5n-5w, first and second Bromide at 12,855-12,985 ft., Tulip Creek at 13,031 ft., and McLish at 13,137-13,611 ft., IP 104 bbl., gravity 46.6°, TD 14,013 ft. (pool opener drilled deeper).

**BROCK, WEST.**—Carter, July; Mid-Continent Petroleum Corp. 1 Vaughn, SE NE NW 15-5s-1w, Lone Grove, 4,484-4,502 ft., and 4,125-41 ft., IP 61 bbl., gravity 37.5°, TD 4,609 ft.

**CARY.** Okfuskee, January; Jergins 1 Krumme, SE SE NE 32-12n-10e, Booch, 2,552-66 ft., IP 3 bbl., TD 3,067 ft.

**CENTRAHOMA.**—Coal, January; Ideal Cement Co. 1 Riddle, C W/2 SW NE 27-2n-9e, Cromwell, 4,975-5,117 ft., IP 214 bbl. of distillate, gravity 58°, TD 5,200 ft.

**CRUCE, SOUTHEAST.**—Stephens, September; Skelly Oil Co. 1 Brittain, SE SW NE 5-1s-5w, Springer sand, 4,234-80 ft., IP 17 bbl., TD 7,042 ft.

**COMANCHE LAKE.**—Stephens, January; George Pace and Ralph Fillmore 1 Woods, SE SE SE 26-2s-7w, lime, 2,755-2,817 ft., IP 5 bbl., gravity 18°, TD 2,882 ft.

**CUSHING.**—Creek, May; Le Bow 3 Fulsom, N/2 N/2 SE 6-17n-7e, reworked Simpson, 2,855-59 ft., IP 7,000,000 cu. ft. of gas, TD 2,859 ft.

**DAVENPORT.**—Lincoln, February; Sim-

## STATEMENT OF CONDITION DECEMBER 31, 1949

### RESOURCES

| | |
|---|---|
| Cash and Due from Banks | $114,591,708.63 |
| U. S. Government Securities | 63,432,228.30 |
| State, Municipal and Other Securities | 2,965,594.37 |
| Stock in Federal Reserve Bank | 750,000.00 |
| Loans and Discounts | 150,529,676.98 |
| Bills of Exchange and Commodity Loans | 33,697,881.68 |
| Bank Premises and Equipment | 2,344,024.04 |
| Real Estate for Bank Expansion | 2,314,923.23 |
| Acceptances — Customers Account | 7,446,282.13 |
| TOTAL | $378,072,319.36 |

### LIABILITIES

| | | |
|---|---|---|
| Capital | $ 12,000,000.00 | |
| Surplus | 13,000,000.00 | $ 25,000,000.00 |
| Undivided Profits | | 2,400,218.25 |
| Reserve for Contingencies | | 2,500,370.86 |
| Reserve for Taxes, etc. | | 854,602.52 |
| Acceptances — Customers Account | | 7,446,282.13 |
| Deposits: | | |
| Individual | $214,303,231.05 | |
| Banks | 122,005,318.38 | |
| U. S. Government | 3,562,296.17 | 339,870,845.60 |
| TOTAL | | $378,072,319.36 |

**REPUBLIC NATIONAL BANK**
of DALLAS

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

rooms 1 Oliver, SW NW SW 12-14n-5e, Prue, 3,266-70 ft., IP 2,000,000 cu. ft. of gas, TD 3,382 ft.

**HAPPY VALLEY.**—Lincoln, May; Wood Oil Co. 1 Haskins, SW SW SE 24-17n-5e, gas production in oil field, Bartlesville, 3,365-80 ft., TD 3,380 ft.

**HEALDTON.**—Carter, December; Burton 1 Neustadt, SW SW SW 29-3s-3w, sand and lime, 6,105-6,385 ft., IP 49 bbl., TD 6,693 ft.

**HEWITT.**—Carter, November; Baylock 1 Dillard, SW NW SW 27-4s-2w, Dillard sand, 3,102-17 ft., IP 18 bbl., TD 6,230 ft., also an extension.

**HOYT.**—Lincoln, July; Stephens 1 Dawson, NW NE NW 4-14n-3e, Hunton, 4,830-38 ft., IP 50 bbl., TD 5,105 ft., (old well worked over).

**KATIE.**—Garvin, August; Carter Oil Co. 1 Cottrell-Moss, C NE NW 8-1n-1w, second Deese sand, 5,390-5,418 ft., IP 266 bbl., TD 6,455 ft.

**KATIE.**—Garvin, December; Deep Rock Oil Corp. 1 Grimes, NE NW 1-1n-2w, Hart sand, 6,859-89, IP 51 bbl., TD 6,945 ft.

**KNOX.**—Grady, January; Pray 1 Mitchell, NW NE NW 34-3n-5w, Permian sand, 2,555-65 ft., IP 64 bbl., gravity 34°, TD 5,516 ft.

**LOCO.**—Stephens, February; Wooley 1 Sledge, SE NE NE 26-2s-6w, Arbuckle, 2,364-2,430 ft., IP 5,535,000 cu. ft. of gas, TD 2,430 ft.

**LINDSAY, EAST.**—Garvin, October; Bauman & Pray 1 Hinkle, C NW SW 6-4n-3w, Oil Creek sand, 11,034-64 ft., IP 200 bbl., TD 11,163 ft., old well drilled deeper.

**MAYSVILLE, SOUTHWEST.**—Garvin, December; California 1 Roller unit, NE NW NW 36-4n-3w, Oil Creek, 8,532-40 ft., IP 247 bbl., TD 8,666 ft.

**MEHAN, SOUTH.**—Payne, October; Hill & Hill 1 Stockton, NW NW SW 35-18n-3e, Simpson, 4,388-4,401 ft., IP 55 bbl., TD 4,402 ft.

**MORVIN, WEST.**—Pottawatomie, March; Cities Service Oil Co. 1 Fleming, NW SW SW 31-9n-3e, unconformity at 4,938-39 ft. and Hunton at 5,023-26 ft., IP 25 bbl., TD 5,026 ft., (pool opener reworked).

**PAGE.**—Osage, April; Dolomite 1 Osage, SW NW SE 28-20n-11e, Wilcox, 2,292-95 ft., IP 25 bbl., TD 2,411 ft.

**PALACINE, SOUTH.**—Stephens, August; Sunray 4 Nichols, SE NW NE 21-2s-6w, Arbuckle, 2,625-52 ft., IP 96 bbl., gravity 36°, TD 2,652 ft.

**PANTHER CREEK, SOUTHWEST.**—Garvin, March; Superior 1 Roller, SE NW NW 26-3n-3w, Hartshorne sand, 7,330-60 ft., IP 37 bbl. of distillate, gravity 67°, TD 7,577 ft., (also an extension to the field).

**PERRY, NORTHWEST.**—Noble, January; Carter Oil Co. 2 Short, SE SW NW 17-21n-1w, Misener, 5,109-21 ft., IP 59 bbl., gravity 43.6°, TD 5,335 ft.

**PETTIQUAH, SOUTHEAST.**—Okfuskee, January; Warburton 1 Washington, NW SW NE 21-13n-7e, Red Fork, 3,171-86 ft., IP 4,881,000 cu. ft. of gas, TD 3,203 ft.

**POLO.**—Noble, March; Mazda 1 Merriman, SE SE NW 26-22n-2w, Marshall, 5,117-46 ft., IP 192 bbl., TD 5,146 ft.

**POLO.**—Noble, April; Midland 1 Hughes, SE NE NE 26-22n-2w, Bartlesville, 4,694-4,730 ft., IP 6 bbl. of distillate, gravity 56° and 45,000,000 cu. ft. of gas, TD 4,785 ft. (also an extension to the field).

**POLO, SOUTHEAST.**—Noble, January; Phillips Petroleum Co. 2 Dayton, NE SE SW 2-21n-2w, Misener, 4,994-99 ft., IP 126 bbl., TD 5,136 ft.

**RICH VALLEY.**—Grant, April; Carter Oil Co. 1 Moore-Daniel, SW SE SE 36-26n-5w, dolomite at 5,780-5,806 ft., and Marshall at 5,833-44 ft., IP 285 bbl., gravity 47.5°, and 1,465,000 cu. ft. of gas, TD 5,844 ft.

**RINGWOOD.**—Major, January; Manning 1 Smith, NE NE SW 34-22n-10w, Manning sand, 6,796-6,836 ft., IP 70 bbl., TD 6,852 ft.

**SEARIGHT.**—Seminole, December; Siler et al., 2-S Joe, SW SE SW 2-9n-6e, Senora sand, 2,808-18 ft., IP 158 bbl., TD 2,823 ft.

**SHAWNEE, NORTHEAST.**—Pottawatomie, October; Clay & Son 1 Quinlan, NW NW NE 19-11n-5e, Hunton, 4,635-44 ft., IP 45 bbl., TD 4,835 ft., old well plugged back.

**SYLVIAN, EAST.**—Seminole, July; Nye 1 Bearhead, NW SE NE 12-10n-7e, Cromwell, 3,608-26 ft., IP 136 bbl., TD 3,628 ft.

**TATUMS.**—Carter, March; Texas Co. 1 Brady, NW NW NW 22-1s-3w, sand, 2,783-2,818 ft., IP 1,210,000 cu. ft. of gas, TD 3,650 ft.

**TECUMSEH.**—Pottawatomie, August; Stanolind Oil & Gas Co. and Amerada Petroleum Corp. 1 Billington "B," SW SE SW 32-9n-3e, Hunton, 4,792-4,960 ft., IP 50 bbl., TD 5,320 ft.

**WITCHER.**—Oklahoma, August; Peppers 1 Hightower, NW NE NW 1-12n-3w, unconformity (and Bois d'Arc?) 6,352-95 ft., IP 153 bbl., TD 6,488 ft.

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## KANSAS

### NEW POOLS

**BARTHOLOMEW, NORTH.**—Sedgwick, March; Huber & Pabco 1 Berk, SW SE NE 30-27s-4w, Mississippian, 3,723-50 ft., IP 677 bbl., TD 3,750 ft.

**BELMONT.**—Rooks, June; Harry Gore 1 Cramm, NW NW NE 28-7s-19w, Lansing, 3,337-46 ft., IP 66 bbl., TD 3,472 ft.

**BERLAND, NORTH.**—Rooks, March; Birmingham & Bartlett Drilling Co. 1 Marcotte, SE SW NW 18-10s-19w, Arbuckle, 3,765-70 ft., IP 3,000 bbl., TD 3,770 ft.

**BLACK CLOUD.**—Stafford, March; E. H. Adair 1 Wolf, NE NE NW 3-21s-12w, Arbuckle, 3,415-35 ft., IP 169 bbl., TD 3,435 ft.

**BONAVILLE.**—McPherson, August; Texas Pacific Coal & Oil Co. 1 Gabreilson, SE SW NW 33-17s-2w, Simpson, 3,557-70 ft., IP 108 bbl., TD 3,570 ft.

**BRYANT, SOUTHEAST.**—Barton, April; W. H. Black et al 1 Galliart, SW SW SE 26-20s-12w, Arbuckle, 3,370-76 ft., IP 510 bbl., TD 3,376 ft.

**BURT.**—Greenwood, July; Ward McGinnis 1 Eastman, NE NW SE 8-26s-11e, Mississippian, 1,865-78 ft., IP 30 bbl., TD 1,878 ft.

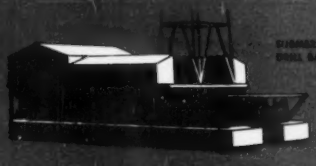
**BUTWICK.**—Butler, April; J. P. Gaty 1 DeMoss, NW SW SW 7-26s-3e, Mississippian.

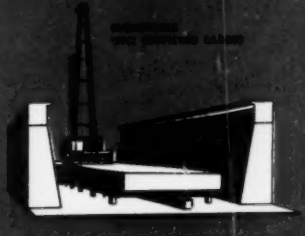
# Levingston

## BUILDERS OF FINE SPECIALIZED MARINE EQUIPMENT FOR THE PETROLEUM INDUSTRY

Levingston

**SHIPBUILDING COMPANY • ORANGE, TEXAS**

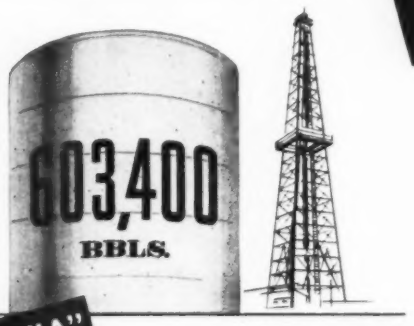




# water kills wells!

## BLACK MAGIC
**OIL BASE drilling fluid keeps them alive and producing**

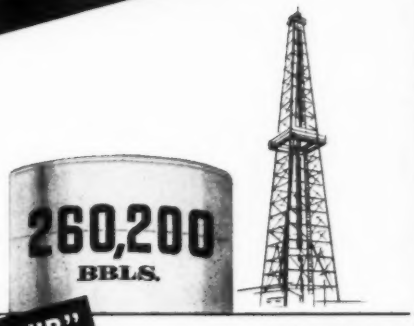
*Compare the productivity of these two wells drilled under similar conditions*




**WELL "A"** drilled with OIL BASE MUD

| Date | Specific Productivity Index | Cumulative Production (bbls) |
|---|---|---|
| March 29, 1939 | .02250 | 17,700 |
| October 3, 1943 | .00682 | 385,900 |
| January 28, 1947 | .00284 | 621,100 |

During the 94 months between the date of the first SPI (March 29, 1939) and the date of the last one (January 28, 1947), total production was 603,400 bbls., or a *monthly average of 6419 bbls.*




**WELL "B"** drilled with WATER BASE MUD

| Date | Specific Productivity Index | Cumulative Production (bbls) |
|---|---|---|
| August 21, 1940 | .00714 | 15,100 |
| August 22, 1943 | .00258 | 148,200 |
| August 29, 1947 | .00129 | 275,300 |

During the 84 months between the date of the first SPI (August 21, 1940) and the last one (August 29, 1947), total production was 260,200 bbls., or a *monthly average of 3,098 bbls.*, less than half!

## *Both wells were drilled in almost identical formations*

These two wells were drilled in the same San Joaquin field under almost identical conditions. Both wells came in flowing. Depth, elevation and other factors so closely parallel one another that it is safe to assume their production should be the same.

| | Well A | Well B |
|---|---|---|
| Sand thickness | 160 ft. | 140 ft. |
| Average permeability | 150 md. | 150 md. |
| Static pressure | 3170 psi | 3165 psi |
| Md. ft. of sand | 24,000 | 21,000 |

Show an engineer the production charts on two identical wells and he'll tell you which twin had the Black Magic. Comparative data proves time and again that water in the production zone has damaging effects. Jamin action (water-blocking) can retard a well (like Well B) to half its potential. Wells are killed with water. Why spend thousands of dollars getting to the oil zone and then ruin it by drilling in with a water-base mud? Do what production-wise operators are doing—complete the well with Black Magic. For complete information write for paper "What Happens Tomorrow?"

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CORE LAB
PETROLEUM RESERVOIR ENGINEERING

2,850-65 ft., IP 3,000 bbl., gravity 38°, TD 2,865 ft.

**BUTWICK, NORTHEAST.**—Butler, April; W. C. Talbott et al 1 Holder, SW NW NE 7-26s-3e, Mississippian, 2,804-40 ft., IP 50 bbl., TD 2,844 ft.

**CHRISLER.**—Ellis, August; Huber & Crowe Drilling Co. 1 Chrisler, NW NW SW 22-11s-16w, Lansing, 3,100-12 ft., IP 54 bbl., TD 3,460 ft.

**DAVIS RANCH.**—Waubansee, June; Carter Oil Co. 1 Davis, SW SE SW 33-13s-10w, Viola, 3,201-06 ft., IP 2,580 bbl., TD 3,206 ft.

**DREILING.**—Ellis, August; M. B. Amer 1 Dreiling, SE SE NE 21-14s-16w, Arbuckle, 3,367-83 ft., IP 173 bbl., TD 3,383 ft.

**EAGLE CREEK.**—Rooks, June; Francis Oil & Gas Co. 1 Wilson, NE NE NE 2-10s-20w, Arbuckle, 3822-31 ft., IP 167 bbl., TD 3,831 ft.

**ELY.**—Russell, September; Elreco 1 Ely, NE NE NE 15-15s-13w, Heebner, 2,946-52 ft., IP 80 bbl., TD 3,314 ft.

**ENGELLAND.**—Rice, February; Skelly Oil Co. 1 Engelland, SW SE SW 34-20s-7w, conglomerate, 3,348-62 ft., IP 50 bbl., TD 3,362 ft.

**EULERT.**—Russell, November; Anschutz 1 Eulert, NW NW SE 35-11s-15w, Arbuckle, 3,316-22 ft., IP 3,000 bbl., TD 3,322 ft.

**FOSTER.**—Russell, December; Crown Drilling Co. 1 Foster, SE SE NE 29-12s-14w, Lansing, 2,841-53 ft., IP 12 bbl., TD 3,854 ft.

**GATES, SOUTH (REVIVED).**—Stafford, March; Faulkner 1 Gates, NW NW NW 3-22s-13w, Arbuckle, 3,748-56 ft., IP 125 bbl., TD 3,756 ft.

**GROW.**—Stafford, August; Westgate-Greenland 1 Grow, SW SW SE 16-21s-13w, Arbuckle, 3,705-12 ft., IP 132 bbl., TD 3,712 ft.

**HAMMER, NORTH.**—Barton, April; Aladdin Petroleum Corp. 1 Brodie, SW SW SE 23-19s-12w, Arbuckle, 3,344-62 ft., IP 511 bbl., TD 3,362 ft.

**HART.**—Stafford, September; Musgrove Petroleum 1 M. L. Hart, SW SW NE 36-22s-14w, Arbuckle, 3,830-32 ft., IP 472 bbl., TD 3,832 ft.

**HAYDEN.**—Rooks, February; Heathman & Honaker 1 Hayden, NE NE SE 31-8s-19w, Arbuckle, 3,513-17 ft., IP 122 bbl., TD 3,517 ft.

**HAZLETT, NORTH.**—Butler, May; Rex & Morris 1 Ammeter, SW SE SE 30-23s-5e, Mississippian, 2,462-72 ft., IP 30 bbl., TD 2,472 ft.

**HILDEBRAND, SOUTH.**—Stafford, July; M. B. Armer et al 1 Hildebrand, NE NE NW 11-24s-12w, Viola, 3,810-30 ft., IP 96 bbl., TD 3,830 ft.

**HOMER.**—Russell, July; John Lindas 1 Ehrlich "B," SE SE NW 17-14s-13w, Tarkio, 2,396-2,435 ft., IP 90 bbl., TD 2,435 ft.

**HOMER, SOUTHEAST.**—Russell, August; J. L. Drilling Co. 1 Dumler, NW SW SW 16-14s-13w, Tarkio, 2,408-32 ft., IP 4 bbl., TD 2,434 ft.

**HUFFSTUTTER.**—Phillips, September; Stableford et al 1 Huffstutter, NE NE NE 6-2s-18w, Lansing-Kansas City, 3,444-80 ft., IP 58 bbl., TD 3,480 ft.

**JONES.**—Harvey, January; Bennett & Roberts 1 Jones, SE SW NE 21-23s-3w, Mississippian, 3,260-68 ft., IP 2,800,000 cu. ft. of gas, TD 3,363 ft.

**JONES, NORTHEAST.**—Harvey, February; Westgate-Greenland Oil Co. 1 Howard, SE SW NW 15-23s-3w, Mississippian, 3,280-84 ft., and 3,315-26 ft., IP 29,900,000 cu. ft. of gas, TD 3,381 ft.

**LARNED.**—Pawnee, August; Sunray Oil Corp. 1 Brown, NE NE SW 28-21s-16w, Arbuckle, 2,877-78 ft., IP 25 bbl., TD 2,881 ft.

**LOCUST GROVE.**—Rooks, May; Sam Pack et al 1 Griebel, NE NE NW 8-7s-19w, Arbuckle, 3,446-56 ft., IP 25 bbl., TD 3,456 ft.

**McCAULEY.**—Barton, September; Bay Petroleum and C. E. Ash 1 McCauley, NW NW SE 34-17s-13w, Arbuckle, 3,277-80 ft., IP 121 bbl., TD 3,406 ft.

**McHALE, SOUTH.**—Rooks, January; Petroleum Inc. 1 Ruzicka, NW NW SW 17-9s-18w, Arbuckle, 3,615-19 ft., IP 50 bbl., TD 3,619 ft.

**MANSUR.**—Cowley, September; G. T. Lackey 1 Mansur, NW NW SE 25-31s-6e, Layton, 2,170-2,489 ft., IP 1,180,000 cu. ft. of gas, TD 2,917 ft.

**MEADOWSIDE.**—Barton, August; Elreco et al 1 Stumps "B," NW NW SE 24-18s-11w, Arbuckle, 3,285-99 ft., IP 3,000 bbl., TD 3,299 ft.

**MEISTRELL.**—Ellis, April; Ereco 1 Meistrell, NW NE SW 3-11s-18w, Arbuckle, 3,532-36 ft., IP 190 bbl., TD 3,536 ft.

**MERLE.**—Stafford, February; Crown Oil Co. 1 Williams, SW SW SW 32-23s-13w, Lansing, 3,669-77 ft., IP 779 bbl., TD 3,679 ft.

**MERTEN, SOUTHEAST.**—Barton, April; Bennett & Roberts 1 Kuhlman, NW NW SW 12-19s-15w, Arbuckle, 3,566-68 ft., IP 121 bbl., TD 3,568 ft.

**MOON.**—Stafford, April; E. H. Adair 1 Moon, NW NW SE 4-22s-13w, Lansing, 3,530-38 ft., IP 33 bbl., gravity 34°, TD 3,802 ft.

**MOORE.**—Pratt, January; Deep Rock Oil Corp. and Rine Drilling Co. 1 Young, SW SW NW 1-26s-14w, Simpson, 4,348-70 ft., IP 40 bbl., TD 4,455 ft.

**MORLAN.**—Graham, February; Derby Oil Co. and Glenn Peel 1 Lewis, NE NE NW 23-10s-21w, Arbuckle, 3,778-84 ft., IP 159 bbl., TD 3,784 ft.

**MUELLER, WEST.**—Stafford, June; Mid-States Oil Co. 1 McCrary "B," SW SW NE 24-21s-13w, Arbuckle, 3,658-69 ft., IP 26 bbl., TD 3,669 ft.

**MUILENBURG.**—Graham, September; D. G. Hansen 1 Muilenburg, SE NE SE 1-10s-21w, Arbuckle, 3,839-41 ft., IP 155 bbl., TD 3,841 ft.

**NEW SALEM.**—Cowley, June; Wakefield and Bridgeport Oil Co. 1 Roberts, SE SE SE 21-31s-5e, Bartlesville, 2,292-2,309 ft., IP 1,500,000 cu. ft. of gas, TD 3,556 ft.

**PALACKY.**—Ellsworth, May; Ferrell Drilling Co. et al 1 Rous, SW SW SE 31-16s-10w, Arbuckle, 3,390-94 ft., IP 48 bbl., TD 3,394 ft.

**PARKER.**—Russell, January; Skelly Oil Co. 1 Parker "A," SE SE NW 18-15s-12w, Arbuckle, 3,260-70 ft., IP 23 bbl., TD 3,270 ft.

**PARKER, NORTHWEST.**—Russell, June; Lindas Drilling Co. 1 Parker, SW SW SW 7-15s-12w, Lansing, 3,086-3,102 ft., IP 833 bbl., TD 3,308 ft.

**PARSLEY.**—Butler, January; Rex & Morris 1 Parsley, NW SE SE 3-26s-3e, Mississippian, 2,695-2,704 ft., IP 45 bbl., TD 2,704 ft.

**PIESTER.**—Russell, March; E. H. Adair 1 Piester "A," SW SE NW 24-15s-13w, Lansing, 3,092-3,100 ft., IP 810 bbl., TD 3,320 ft.

**PRAIRIE HOME.**—Stafford, July; M. B. Amer 1 Andress, NE NE SW 2-21s-13w, Arbuckle, 3,514-28 ft., IP 242 bbl., TD 3,528 ft.

**PROFFITT.**—Rice, July; Henderson Oil Co. 1 Proffitt, SW SW NW 13-20s-10w, Arbuckle, 3,340-45 ft., IP 62 bbl., TD 3,345 ft., (new pool given old discontinued pool name).

**RHODES.**—Barber, October; Barbara Oil Co. 1 Page estate "A," SW SW SW 15-33s-11w, Mississippian, 4,556-61 ft., IP 146 bbl., TD 4,610 ft.

**RINGWALD.**—Rice, June; Anderson-Prichard Oil Corp. 1 Ringwald, NE SE NE 32-18s-10w, Lansing, 2,947-52 ft., IP 375 bbl., TD 3,090 ft.

**ROLLING GREEN, EAST.**—Barton, July; Bay Petroleum Co. 1 Krone, SW SW SW 30-20s-12w, Arbuckle, 3,492-3,531 ft., IP 30 bbl., TD 3,531 ft.

**RUSSELL, EAST.**—Russell, August; R. H. Shields and Anschutz 1 Anschutz, NW SW SW 25-13s-14w, Arbuckle, 3,273-75 ft., 3,277-78 ft., and 3,282-83 ft., IP 107 bbl., TD 3,288 ft.

**SILVER BELL.**—Stafford, August; Ferrell Drilling et al 1 Hahn, NW NW SW 10-22s-13w, Arbuckle, 3,774-86 ft., IP 408 bbl., TD 3,786 ft.

**STAYTON.**—Cowley, August; K. T. Weidemann 1 Stayton, SW SW NW 32-32s-4e, Bartlesville, 3,122-41 ft., IP 20 bbl., TD 3,141 ft.

**SUNNY VALLEY.**—Barton, January; Bay Petroleum Co. 1 Schartz, SW SW SE 7-20s-12w, Lansing, 3,230-34 ft., IP 302 bbl., TD 3,433 ft.

**TEALL.**—Graham, June; M. B. Amer et al 1 Teall, NW NW SE 9-10s-21w, Kansas City, 3,528-34 ft., IP 32 bbl., TD 3,822 ft.

**TRAPP, EAST.**—Russell, August; E. H. Adair 1 Sellens, SW SE SW 13-15s-13w, Arbuckle, 3,278-81 ft., IP 143 bbl., TD 3,281 ft.

**WAKEENEY, EAST.**—Trego, May; The Heller Co. et al 1 Carpenter, SE SE SW 13-11s-23w, Kansas City, 3,576-78 ft., IP 51 bbl., TD 4,050 ft.

**WHITEWATER.**—Butler, April; E. H. Adair 1 McCullough, SE SE NW 32-25s-4e, Viola, 3,645-55 ft., IP 50 bbl., gravity 43°, TD 3,656 ft.

**WORKMAN, SOUTHEAST.**—Barton, March; E. H. Adair 1 Lanterman, NW NW SE 34-20s-12w, Arbuckle, 3,392-3,415 ft., IP 189 bbl., TD 3,415 ft.

**YOHE.**—Rooks, May; Continental Oil Co. 1 Yohe, SE SE NE 4-9s-18w, Lansing, 3,266-90 ft., IP 892 bbl., TD 3,511 ft.

**UNNAMED.**—Butler, September; K. T. Weidemann 1 Rombold, SW SW SW 4-26s-3e, Mississippian, 2,764-71 ft., IP 30 bbl., TD 2,771 ft.

**UNNAMED.**—Butler, August; D. S. Hager and Federal Royalty Co. 1 Reiserer, SW SW NW 15-26s-7e, Mississippian, 2,770-2,887 ft., IP 28 bbl., TD 3,176 ft.

**UNNAMED.**—Morton, August; Cities Service Co. 1 Morton County, NW NW SE 2-34s-41w, Permian, 2,224-46 ft., 2,270-74 ft., 2,282-88 ft., 2,292-96 ft., and 2,300-06 ft., IP 8,250,000 cu. ft. of gas, TD 2,690 ft.

**UNNAMED.**—Stafford, June; White & Ellis 1 Zlab, C SE 9-24s-14w, Mississippian, 1,655-56 ft., IP 5 bbl., TD 1,656 ft.

**UNNAMED.**—Woodson, June; C. W. Darling 1 W. P. Hare, SW NW NE 32-25s-14e, Lansing, 677-92 ft., IP 6 bbl., TD 692 ft.

**UNNAMED.**—Barton, October; Stickel Drilling Co. 1 Rowland, NE NE SW 32-17s-13w, Arbuckle, 3,323-47 ft., IP 186 bbl., TD 3,347 ft.

**UNNAMED.**—Barton, November; Aladdin Petroleum Co. 1 Schartz, SE SE NW 14-19s-12w, Lansing, 3,165-74 ft., IP 98 bbl., TD 3,455 ft.

**UNNAMED.**—Barton, December; Aladdin Petroleum Co. 1 Kiltgen, SW SW NW 12-19s-12w, Arbuckle, 3,390-3,407 ft., IP 120 bbl., TD 3,407 ft.

**UNNAMED.**—Ellis, October; Appleman & Derby 1 Warren "A," NW NW NE 12-11s-20w, Lansing, 3,458-85 ft., IP 390 bbl., TD 3,800 ft.

**UNNAMED.**—Ellis, November; Adair 1 Froelich, SW SE SE 27-12s-16w, Arbuckle, 3,541-44 ft., IP 203 bbl., TD 3,544 ft.

**UNNAMED.**—Ellis, December; Peel & Hardman 1 Haas, C N/L NE NE 2-15s-19w, Arbuckle, 3,697-3,703 ft., IP 182 bbl., TD 3,703 ft.

**UNNAMED.**—Harper, November; Drillers Gas Co. 1 Grabs, NE NE NE 13-31s-9w, Mississippian, 4,400-14 ft., IP 32 bbl., TD 4,449 ft.

**UNNAMED.**—Marion, December; Slussen Drilling Co. 1 Holub, SE SW SW 5-19s-4e, Mississippian, 2,360-66 ft., IP 45 bbl., TD 2,366 ft.

**UNNAMED.**—Morris, December; Loomis & Medmin 1 Atkinson, SW SW NE 15-17s-5e, Mississippian, 2,232-77 ft., IP 30 bbl., TD 2,277 ft.

**UNNAMED.**—Rice, October; Atlantic Refining Co. 1 Hoffman, NW NE NE 31-18s-6w, Lansing, 3,092-96 ft., IP 3,330 bbl., TD 3,600 ft.

**UNNAMED.**—Stafford, October; Anschutz 1 Smith, NW NW SW 24-22s-14w, Arbuckle, 3,798-3,805 ft., IP 240 bbl., TD 3,805 ft.

**UNNAMED.**—Sumner, November; Champlin Refining Co. 1 Slentz, NW NW NW 10-35s-2w, Simpson sand, 4,711-19 ft., IP 50 bbl., TD 4,719 ft.

## NEW PAYS

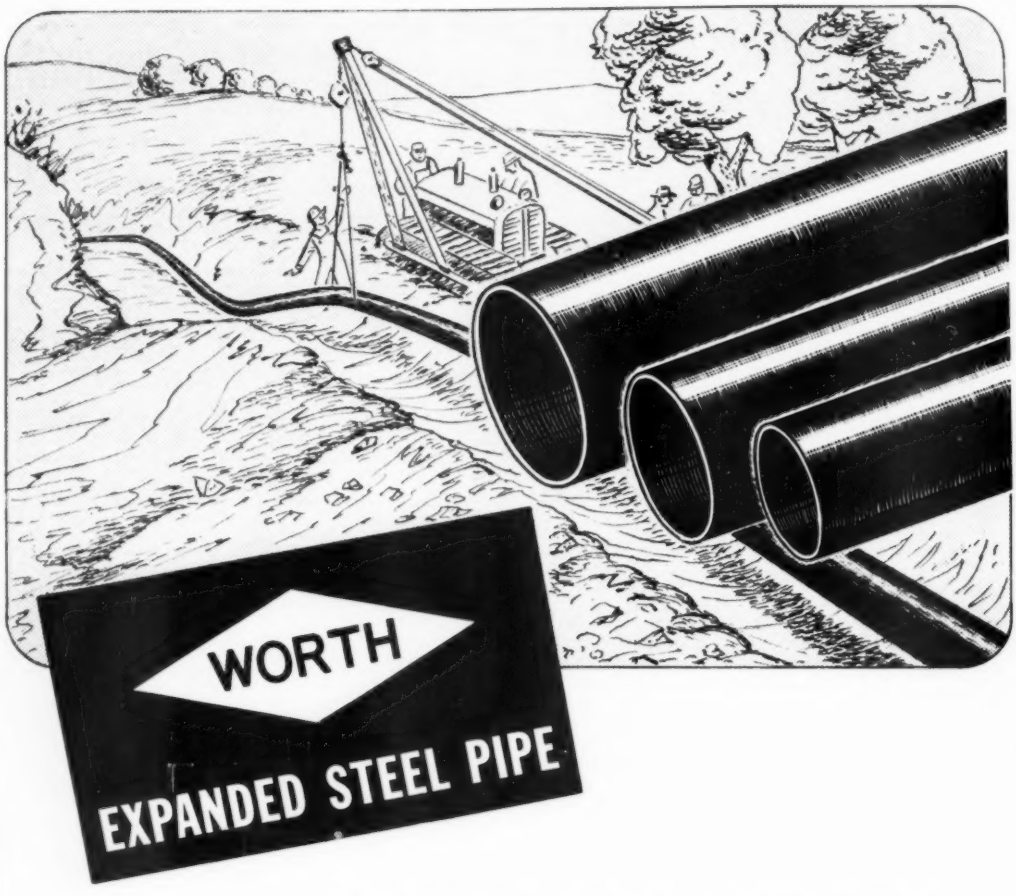
**ALBION.**—Reno, January; Helmerich & Payne 1 Waltner, NW NW NE 23-26s-6w, Lansing, 3,344-54 ft., IP 33 bbl., TD 3,665 ft.

**CATHERINE.**—Ellis, May; Darby & Bothwell 1 Giebler "B," NE NE SE 10-13s-17w, Arbuckle, 3,516-42 ft., IP 1,301 bbl., TD 3,542 ft.

**KRAFT-PRUSE, NORTHEAST.**—Barton, February; J. J. Lynn 4 Smith, N/2 SE SW 36-16s-11w, Kansas City, 3,250-63 ft., IP 80 bbl., TD 3,386 ft.

**ORTH, WEST.**—Rice, January; Anderson-Prichard Oil Corp. 4 Feist, NE SW SW 21-18s-10w, Lansing, 2,688-2,702 ft., IP 16 bbl., TD 3,254 ft.

**WOMACK (GAS FIELD).**—Butler, March; Huber Corp. 2 Womack, NE SE NE 19-28s-6e, Mississippian, 2,786-2,801 ft., IP 52 bbl., TD 2,801 ft.

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**GUSTAFSON.**—Russell, May; Plains Exploration Co. 2 Kaufman est., NW SE SE 14-15s-12w, Shawnee, 2,924-28 ft., IP 28 bbl., TD 3,325 ft.

## NEBRASKA

### NEW POOLS

**GURLEY.**—Cheyenne; Ohio Oil Co. 1 M. E. Egging, NE NE NE 11-15n-49w, TD 4,429 ft., IP 225 bbl., 35° gravity; first Dakota, 4,401-29 ft.

### NEW PAY

**GURLEY.**—Cheyenne; Ohio Oil Co. 3 M. E. Egging, SW NW NE 11-15n-49w, TD 4,554 ft., IP 65 bbl., 34° gravity, third Dakota, 4,490-4,554 ft.

## ILLINOIS

### NEW POOLS

**BEAVER CREEK, NORTH.**—Bond, August; Hoiles Petroleum Co. 1-A Hoiles, SW SW SW 13-4n-3w, IP 3 bbl., Benoist 1,121-27 ft., TD 1,127 ft.

**BOGOTA, NORTH.**—Jasper, May; Schweitert et al., 1 Freeman, E½ NW SW 15-6n-9e, IP 15 bbl., McClosky, 3,077-83 ft., and 3,087-90 ft., TD 3,130 ft.

**CANTRELL.**—Hamilton, November; J. W. Everhart 1 Wesley Foundation, SW SW SW 5-7s-5e, IP 525 bbl., Aux Vases, 3,200-15 ft., TD 3,216 ft.

**DEOD RIVER.**—White, July; C. E. Skiles 1 McAllister, NW SW NE 7-7s-11e, IP 45 bbl., Cypress, 2,475-86 ft., TD 2,486 ft.

**DUDLEY.**—Edgar, June; C. M. Hickman 1 Louis Brinkerhoff, NW NW NE 10-13n-13w, IP 30 bbl., Pennsylvanian 309-26 ft., and 415-69 ft., TD 469 ft.

**EDINBURG.**—Christian, November; Paul Doran et al., 1 Earl Heater, NW NE NW 15-14n-3w, IP 8 bbl., Devonian, 1,812-15 ft., TD 1,853 ft.

**ELBRIDGE.**—Edgar, September; National Associated Petroleum Co. and Continental Oil Co. 1 H. S. Cockcroft, NW NW NW 1-12n-11w, IP 50 bbl., McClosky, 969-73 ft., TD 2,093 ft.

**INA, NORTH.**—Jefferson, July; Dunbar Drilling Co. 1 Wilson, NE NE SW 20-4s-3e, IP 30 bbl., McClosky, 2,941-45 ft., TD 2,977 ft.

**INMAN CENTRAL.**—Gallatin, August; J. L. Crawford 1 Sutton, SW SW NE 6-8s-10e, IP 18 bbl., Tar Springs, 2,123-31 ft., and 2,136-40 ft., TD 2,496 ft.

**KEYESPORT.**—Clinton, May; Goldschmidt et al., 1 Goldschmidt, SE NW NE 17-3n-2w, IP 17 bbl., Bethel, 1,175-85 ft., TD 1,185 ft.

**MERRIAM.**—Wayne, April; Robinson & Puckett 1 J. C. Meyers, NW NW SE 3-2s-8e, IP 46 bbl., McClosky, 3,368-77 ft., TD 3,377 ft.

**MITCHELL.**—Edwards, November; The Texas Co. 1 Foster, SE SW SE 30-2s-10w, IP 156 bbl., McClosky, 3,305-10 ft., TD 3,329 ft.

**RACCOON LAKE.**—Marion, July; The Texas Co. 1 Franke-Meyer Unit, NE SW SE 3-1n-1e, IP 214 bbl., Rosiclare, 1,924-34 ft., and McClosky, 1,951-56 ft., TD 2,067 ft.

**ROBY.**—Sangamon, October; Cliff Perardi 1 Goldstein, SW NW NE 10-15n-3w, IP 16 bbl., Silurian, 1,761-77 ft., TD 1,780 ft.

**RURAL HILL, NORTH.**—Hamilton, July; Gulf Refining Co. 1 Russ, SW NE SW 35-5s-5e, IP 22 bbl., Rosiclare, 3,324-32 ft., TD 3,468 ft.

**STE. MARIE, EAST.**—Jasper, June; Baldwin & Graham 1 Burton, NE NE NE 33-6n-14w, IP 35 bbl., Rosiclare, 2,686-91 ft., TD 2,800 ft.

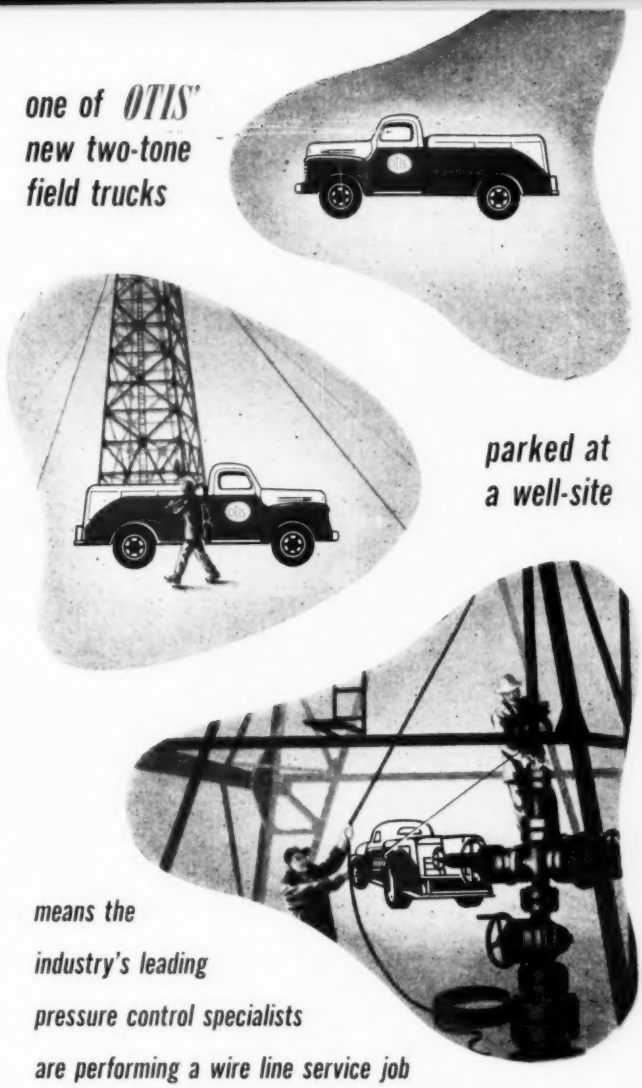
**STE. MARIE, WEST.**—Jasper, February; Smith & Coffman 1 Ochs, SE SW NE 35-6n-10e, IP 175 bbl., McClosky, 2,812-14 ft., TD 2,844 ft.

**SPARTA, SOUTH.**—Randolph, September; Kleiboecker & Schnitzmeyer 2 McMillan Heirs, NW NE SE 7-5s-5w, IP 1 bbl., Cypress, 881-96 ft., TD 900 ft.

**TAYLOR HILL.**—Franklin, July; Producers Pipe Line Co. 1 King, NW NE SW 16-5s-4e, IP 154 bbl., lower O'Hara, 3,056-62 ft., TD 3,063 ft.

**THOMPSONVILLE, EAST.**—Franklin, September; Carter Oil Co. 1 Trustee Tract 8, SW NW NE 12-7s-4e, IP 489 bbl., Aux Vases, 3,148-58 ft., TD 3,158 ft.

**WEAVER.**—Clark, June; Schaffer & Granholm 1 Cusick, NW NE SW 20-11n-10w, IP 6 bbl., Devonian, 2,086-2,128 ft., TD 2,135 ft.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**WESTFIELD, NORTH.**—Coles, June; B. W. Quick 1 Steele, NW NW NW 17-12n-11w, IP 2 bbl., Pennsylvanian, 488-504 ft., TD 507 ft.

**WILLIAMS.**—Jefferson, January; H. E. Howard 1 A. R. McLaughlin, NW SE SW 2-3s-2e, IP 12 bbl., Aux Vases, 2,570-82 ft., TD 2,796 ft.

**ZENITH, SOUTH.**—Wayne, July; Illinois-Mid-Continent Co. and Aurora Gasoline Co. 1 R. Richardson, NW NE SW 9-1n-5e, IP 675 bbl., McClosky, 2,997-3,010 ft., TD 3,092 ft.

**UNNAMED.**—Morgan, December; Murwood Oil & Gas Co. 1 Doolin-Carr, C SE NE NE 16-13n-8w, IP 2,000,000 cu. ft. of gas, Silurian, 1,042-60 ft., TD 1,103 ft.

## NEW PAYS

**ASSUMPTION, NORTH.**—Christian, January; National Associated Petroleum Co. and Continental Oil Co. 5 J. H. Lawrence, NW SE SE 9-13n-1e, IP 38 bbl., Bethel sand, 1,052-66 ft., TD 1,066 ft.

**ASSUMPTION, NORTH.**—Christian, January; National Associated Petroleum Co. and Continental Oil Co. 4 J. H. Lawrence, SE SE NE 9-13n-1e, IP 309 bbl., Rosiclare, 1,156-67 ft., TD 1,169 ft.

**CLAY CITY-NOBLE CONSOLIDATED.**—Jasper, July; Freeman 1 Lomelino et al., 1 Ochs, C NW NE 27-6n-10e, IP 53 bbl., McClosky, 2,808-20 ft., St. Louis (new pay) 2,935-38 ft., and Devonian (new pay) 4,344-56 ft., and 4,396-4,402 ft., TD 4,515 ft.

**ELBRIDGE.**—Edgar, October; National Associated Petroleum Co. and Continental Oil Co. 1 H. S. Cockeroft, NW NW SW 1-12n-11w, IP 5 bbl., Devonian, 1,949-68 ft., TD 2,093 ft.

**FAIRFIELD.**—Wayne, July; Stewart Oil Co. 2 Bothwell, NE NW NW 20-2s-8e, IP 294 bbl., Tar Springs, 2,555-65 ft., and Cypress (new pay) 2,933-47 ft., TD 3,381 ft.

**FAIRFIELD.**—Wayne, June; Nation Oil Co. 3-A Nation-Curry, SE SW SW 17-2s-8e, IP 210 bbl., Aux Vases, 3,194-3,210 ft., and McClosky (new pay), 3,307-14 ft., TD 3,316 ft.

**FAIRFIELD.**—Wayne; Nation Oil Co. 3 Nation-Curry, SE SW SW 17-2s-8e, IP 670 bbl., Tar Springs, 2,552-64 ft., TD 2,654 ft.

**GRAYVILLE, WEST.**—Edwards, April; Walter Duncan and S. Yingling 1 Schmittler, SW SW SE 14-3s-10e, IP 30 bbl., Waltersburg (new pay) 2,383-93 ft., and Cypress, 2,842-50 ft., TD 3,206 ft.

**GRAYVILLE, WEST.**—White, April; C. E. Brehm 4 Hon., SW SW NE 34-3s10e, IP 300 bbl., Tar Springs, (new pay) 2,445-66 ft., and Cypress, 2,849-64 ft., TD 2,875 ft.

**INMAN.**—Gallatin, May; C. E. Skiles and Aurora Gasoline Co. 2 Lawler, SW SW SE 13-8s-9e, IP 190 bbl., Tar Springs, 2,123-33 ft., TD 2,135 ft.

**INMAN CENTRAL.**—Gallatin, June; Van Tuyl & Gilpin 1 Wilson, SE NE SE 36-7s-9e, IP 108 bbl., lower O'Hara, 2,816-28 ft., TD 2,956 ft.

**INMAN CENTRAL.**—Gallatin, August; J. L. Crawford 2 Wilson, NE SE NW 6-8s-10e, IP 12 bbl., lower Renault, (new pay) 2,772-79 ft., Aux Vases, 2,779-91 ft., and Tar Springs, 2,152-60 ft., TD 2,820 ft.

**INMAN CENTRAL.**—Gallatin, July; S. A. Gilpin 1 J. Fromm, SE NE NW 6-8s-10e, IP 150 bbl., Aux Vases, 2,770-90 ft., TD 2,790 ft.

**JUNCTION.**—Gallatin, February; George S. Engle 1 R. V. Stinson, NE SE SW 9-9s-9e, IP 35 bbl., Hardinsburg, 2,118-35 ft., TD 2,139 ft.

**LANCASTER, SOUTH.**—Wabash, December; Ashland Oil & Refining Co. et al., 1 Kortage, NW SE NW 21-1n-13w, IP 94 bbl., Benoist, 2,518-24 ft., TD 2,529 ft.

**NEW HARMONY, SOUTH.**—White, August; V. T. Drilling Co. 1 Brown, SE NW NW 29-5s-14w, IP 35 bbl., Aux Vases, 3,005-12 ft., TD 3,136 ft.

**NEW HAVEN, NORTH.**—White, July; Sohio Petroleum Co. 3-B Pearce, NE NE NE 3-7s-10e, IP 106 bbl., McClosky, 2,961-66 ft., TD 2,966 ft.

**NEW HAVEN, NORTH.**—White, May; George & Wrather and W. Duncan 1 N. Garrison, NE NW NE 3-7s-10e, IP 367 bbl., Waltersburg, 2,154-60 ft., TD 2,160 ft.

**NEW HAVEN, WEST.**—Gallatin, January; Yingling Oil & Mining Co. 4 A. J. Stafieth, SE SW NW 34-7s-10e, IP 48 bbl., Cypress, 2,558-73 ft., TD 2,737 ft.

**OMAHA.**—Gallatin, June; George & Wrather et al., 2 Patton, SE SW SW 34-7s-8e, IP 20 bbl., Pennsylvanian, 366-96 ft., TD 402 ft.

**RACCOON LAKE.**—Marion, September; Texas Co. 1 Scott-Aydt Unit, SE NE SW 3-1n-1e, IP 72 bbl., Cypress, 1,653-76 ft., TD 2,025 ft.

**RACCOON LAKE.**—Marion, November; Texas Co. 2 G. Griner, SW SW NE 3-1n-12, IP 142 bbl., lower O'Hara (new pay) 1,886-91 ft., Rosiclare, 1,908-20 ft., McClosky, 1,940-55 ft., TD 1,955 ft.

**RUARK.**—Lawrence, October; Hayes Drilling Co. and Big Four Oil & Gas Co. 1 R. C. Horton, NW NW NW 17-2n-12w, IP 262 bbl., Tar Springs, 1,602-11 ft., TD 1,611 ft.

**SAILOR SPRINGS, WEST.**—Clay, March; Magnolia Petroleum Co. 3 E. R. Cambron, NE SW NE 15-4n-7e, IP 8 bbl., Aux Vases, 2,823-86 ft., TD 2,980 ft.

**SESSER.**—Franklin, August; Paul Mosebach 1 Bays, SE NE SW 35-5s-1e, IP 35 bbl., Devonian, 4,360-4,435 ft., TD 4,500 ft.

**STAFFORD.**—Clay, May; Johnson & Canfield 2 Nodaker, SE NW SW 23-2n-7e, IP 1 bbl., Cypress, 2,704-10 ft., TD 2,710 ft.

**WEST END.**—Hamilton, October; George & Wrather 1 Laswell, SW NE SW 18-7s-5e, IP 15 bbl., McClosky, 3,274-86 ft., TD 3,316 ft.

**WHITTINGTON, WEST.**—Franklin, August; B. P. Jones 1 Boyles, NW NW SW 13-5s-2e, IP 25 bbl., Bethel, 2,616-25 ft., TD 2,780 ft.

**WILLIAMS.**—Jefferson, August; W. F. Seigler 1-A Wakefield, SE SE NE 3-3s-2e, IP 18 bbl., Bethel (new pay), 2,505-12 ft., and Aux Vases, 2,570-85 ft., TD 2,585 ft.

**WOBURN, SOUTH.**—Bond, October; M & M Drilling Co. 3 Voloski, SE SW SE 16-6n-2w, IP 47 bbl., Devonian, 2,278-88 ft., TD 2,289 ft.

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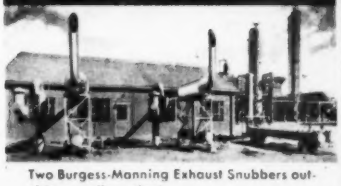

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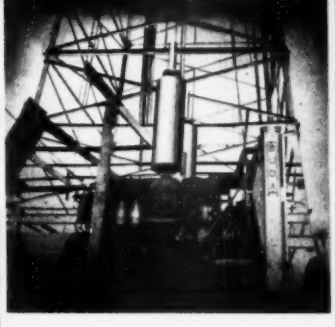

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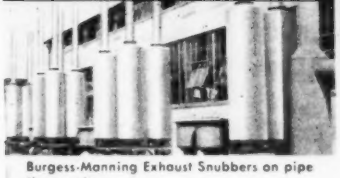
Three Burgess-Manning Snubbers on engines at Shell Oil plant in California.

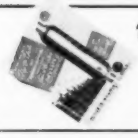
**Pipe Line**



Burgess-Manning Exhaust Snubbers on pipe line engines.

**Portable Drilling Rig**

Portable oil rig using Burgess-Manning Snubber.



*Write for Bulletin*

Bulletin No. 497 features Burgess-Manning's new SDG Slug Buster Snubber.

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## INDIANA

### NEW POOLS

**ARDA**—Pike, June; W. White 1 F. M. Neal, NW NW NW 12-1n-8w, IP 25 bbl. McClosky 1,297-1,302 ft., TD 1,302 ft.

**ARMSTRONG**—Vanderburgh, August; Ryan Oil Co. 1 Schweikart, NE NE NW 15-5s-11w, IP 171 bbl., O'Hara 2,536-52 ft., TD 2,651 ft.

**BLACKHAWK**—Vigo, August; Gilliam Drilling Co. 1 Huntwork, NW NW SE 20-10n-8w, IP 100 bbl., Devonian 1,847-79 ft., TD 1,984 ft.

**CARLISLE**—Sullivan, October; John Unger 1 J. F. Queen, SE SE NW 17-6n-9w, IP 50 bbl., McClosky 1,319-27 ft., TD 1,335½ ft.

**CRUNK, SOUTH**—Posey, August; George & Wrather and Aurora Gasoline Co. 1 Tennison, SW SE NW 20-7s-12w, IP 28 bbl. Hardinsburg 2,069-77 ft., TD 2,077 ft.

**CYPRESS POND**—Knox, August; Winmar Oil Co. 1 Parkinson, NE NE NW 11-1s-12w, IP 66 bbl., lower O'Hara 2,262-65 ft., TD 2,269 ft.

**FORT BRANCH**—Gibson, October; George & Wrather 1 Titzer, SE NE SW 17-3s-10w, IP 70 bbl., Tar Springs 1,543-52 ft., TD 1,552 ft.

**KING**—Gibson, August; Evans & Dobbs Drilling Co. 1 A. C. Brown, NE NW NE 28-2s-11w, IP 96 bbl., Bethel 2,114-34 ft., TD 2,150 ft.

**KOLB**—Gibson, February; Superior Oil Co. 1 Joseph Kolb, NW SE SW 22-1s-10w, IP 26 bbl., McClosky 1,894-98 ft., TD 2,033 ft.

**MIDWAY GAS**—Spencer, August; J. C. Ellis et al 1 Grover Daniels, SW SW SW 11-8s-7w, IP 2,000,000 cu. ft. of gas, Tar Springs 980-89 ft., TD 1,004 ft.

**PATOKA, EAST**—Gibson, July; Winmar Oil Co. 1 Henry White, SW NE SW 29-1s-10w, IP 44 bbl., Cypress 1,674-88 ft., TD 1,688 ft.

**PAXTON**—Sullivan, August; A. J. Nash 1 R. H. Jackson, NE SW SE 23-7s-9w, IP 5 bbl., McClosky 1,200-07 ft., TD 1,207 ft.

**PELZER**—Warrick, October; V-T Drilling Co. 1 Tom Helm, SW SW NW 23-6s-8w, IP 50 bbl., Cypress 1,561-66 ft., TD 1,886 ft.

**PIROQUE**—Posey, April; B. M. Heath 1 Laura F. Hardwick, SE SE SW 18-8s-13w, IP 175 bbl., McClosky 2,629-34 ft., 2,646-62 ft., 2,694-2,712 ft., TD 2,751 ft., PB 2,712 ft.

**ST. JAMES**—Gibson, October; Homer Luttrell 1 Charles E. Clark, NE NE SW 7-4s-10w, IP 60 bbl., McClosky 2,280-85 ft., TD 2,290 ft.

**ST. WENDELL, EAST**—Posey, November; C. E. Skiles 1 Luigs et al, SE SW NW 25-5s-12w, IP 4 bbl., Cypress 2,280-90 ft., TD 2,280 ft.

**STOOKER, EAST**—Posey, April; W. E. Witt et al 1 Walter Whitehead, NE SW NW 3-7s-12w, IP 150 bbl., McClosky, 2,708-12 ft., TD 2,713 ft.

**SWEEZER**—Spencer, July; George Dobbs, Jr., 1 C. D. Williams SE SE SW 22-6s-7w, IP 10 bbl., Waltersburg 947-56 ft., TD 956 ft.

**TERRY HAUTE, SOUTH**—Vigo, May; G. H. Froderman 1 J. T. and J. S. Royse, NE NE SE 9-11n-9w, IP 54 bbl., Devonian 1,681-86 ft., TD 1,775 ft.

**WHEATONVILLE**—Gibson, June; Gilliam Drilling Co. 1 Wm. R. Stitt, NW NE NW 12-4s-10w, IP 92 bbl., O'Hara, 2,014-19 ft. and McClosky 2,050-56 ft. and 2,086-94 ft., TD 2,122 ft.

**YORK FERRY**—Sullivan, August; Frank Strickland 1-A Kelly, NW NW SE 11-8n-11w, IP 9 bbl., Pennsylvanian 590-606 ft., TD 606 ft.

**UNNAMED**—Elkhart, April; M. C. Fletcher 2 L. R. Fisher, NW NW SE 25-38n-5e, IP 5,000,000 cu. ft. gas, Trenton 502-56 ft., TD 572 ft.

**UNNAMED**—Wabash, May; Jacob Stark 1 Lucretta & Van Luem, SW SW SW 33-26n-7e, IP 3 bbl., Trenton 876-955 ft., TD 955 ft.

**UNNAMED**—Sullivan, November; F. B. Cline 1 J. & F. Wilson, 3,068 ft. SL 320 ft. EL SE NE 23-8n-10w, IP 1,760,000 cu. ft. gas, Pennsylvanian 760-75 ft. and 785-90 ft., TD 2,637 ft.

### NEW PAYS

**BRISTOW**—Perry, September; Arthur Crewe 1 Alvin Franchville, 330 NL 330 WL NW NE NW 30-4s-2w, IP 3 bbl., Jackson

311-25 ft., TD 325 ft. (first oil production in old gas area).

**CARLISLE**—Sullivan. November; John Unger 1 Carl Knott, NW SW NE 17-6n-9w, IP 4 bbl., Salem lime 1,720-27 ft., TD 1,727 ft.

**COLLEGE**—Posey, March; G. C. Schoonmaker 1 Bishop Grimmelsman, SE SE SE 9-8s-14w, IP 35 bbl., Palestine, 1,730-40 ft., TD 2,769 ft.

**CYPRESS POND**—Knox, September; Winmar Oil Co. 1 Ralph Johnson, SE NW NE 11-1s-12w, IP 79 bbl., Bethel 2,086-93 ft., TD 2,362 ft.

**FORT BRANCH**—Gibson, November; George & Wrather 1 Zimmerman, SW NW SE 17-3s-10w, IP 65 bbl., Jackson 1,768-85 ft., TD 2,041 ft.

**HARMONY GAS**—Sullivan, November; A. J. Slagter, Jr., 1 J. H. Brown, NW SW SW 28-8n-10w, Pennsylvanian 808-15 ft., TD 823 ft., (opens oil production).

**HEUSLER**—Posey, May; Coy Oil Co. 1 J. Grumble, SE SE SW 36-6s-12w, IP 15 bbl., Jackson sand, 2,170-78 ft., TD 2,191 ft.

**KING**—Gibson, November; Evans & Dobbs 1 Laura Woods, SE SW SE 21-2s-11w, IP 85 bbl., Aux Vases 2,240-48 ft., TD 2,250 ft.

**OAKTOWN**—Knox, June; Illinois Mid-Continent Co. and V & S Drilling Co. 1 Nellie Walden, NW SW SE 3-5n-10w, IP 35 bbl., Salem lime 1,850-74 ft., TD 2,897 ft.

**OAKTOWN**—Knox, July; Illinois Mid-Continent Co. 2 Mitchell-Green, 2,750 SL 2,040 EL 3-5n-10w, IP 22 bbl., Salem lime 1,872-73 ft., TD 1,873 ft.

**OWENSVILLE, SOUTH**—Gibson, December; C. E. O'Neal 2 Curtis Garwood, SW NE SE 25-3s-12w, IP 255 bbl., Aux Vases 2,450-66 ft., TD 2,466 ft.

**STOOKER**—Posey, August; C. C. Nash et al 1 Oeth heirs, 330 SL 2,970 EL N½ 7-7s-12w, IP 2 bbl., Mansfield 1,169-82 ft., TD 1,184 ft.

**TERRE HAUTE SOUTH**—Vigo, September; G. H. Frederman 3-A J. T. & J. S. Royse, NE NE SE 9-11n-9w, IP 55 bbl., Carper sand 1,429-90 ft., TD 1,530 ft.

**VAUGHN**—Vanderburgh, October; S. D. Jarvis 1 D. Kolk, SE SW NW 22-7s-11w, IP 80 bbl., McClosky 2,403-12 ft., TD 2,505 ft.

## WESTERN KENTUCKY

### NEW POOLS

**CANEY MOUND, EAST.**—Union, August; Delta Drilling Co. et al., 1 John Walker et al, 1,340 ft. NL and 1,510 ft. EL 13-P-20, IP 370 bbl., lower O'Hara, 2,512-23 ft., TD 2,526 ft.

**CURDSVILLE, EAST.**—Henderson, February; Sohio Petroleum Co. 1 Shiver heirs, SW SE NW 1-O-26, IP 65 bbl., Bethel sand, 1,820-28 ft., TD 1,829 ft.

**DIAMOND ISLAND.**—Henderson, October; Nash Redwine 1 Bowers Bros.-Walker, 40 ft. NL and 2,500 ft. WL 15-Q-22, IP 184 bbl., Rosiclare, 2,573-80 ft., TD 2,650 ft.

**REED, EAST.**—Henderson, November; Kingwood Oil Co. 1 D. Leach, 2,940 ft. SL and 3,350 ft. WL 15-Q-27, IP 108 bbl., Waltersburg 1,191-95 ft., TD 1,196 ft.

**RIDGE.**—Posey, January; Coy Oil Co. and Ashland Oil & Refining Co. 1 William Cullinan heirs, NW SE SW 23-7s-14w, IP 35 bbl., McClosky, 2,651-56 ft., and O'Hara 2,725-29 ft., TD 2,805 ft.

**ROGERS LANDING.**—Henderson, April; Sun Oil Co. 1 R. Duncan et al., NE NW SE 23-O-25, IP 3 bbl., Cypress, 1,976-86 ft., TD 1,988 ft.

**WABASH ISLAND.**—Union, September; I. W. Hartman 1 Mrs. Vance Meredith, 2,340 ft. NL and 1,750 ft. EL 11-P-18, IP 30 bbl., Cypress, 2,306-32 ft., TD 2,796 ft.

**WAITMAN.**—Daviess, April; C. E. Skiles 1 R. F. Kelly, SE SW NE 8-Q-31, IP 60 bbl. McClosky, 1,312-15 ft., TD 1,317 ft.

**UNNAMED.**—Ohio, June; W. E. Adams et al., 1 Carder, 29 ft. NL and 1,900 ft. EL 10-M-34, IP 1,000,000 cu. ft. of gas, Jackson 421-25 ft., TD 425 ft.

**UNNAMED.**—Ohio, December; S. W. Bardill 1 Chester Tiehnor, NE NE NE 7-L-31, IP 7 bbl., Salem lime, 1,484-1,510 ft., TD 1,593 ft.

### NEW PAYS

**CANEY MOUND, EAST**—Union, September; Delta Drilling Co. 2 Walker Estate, 1,290 ft. NL and 2,060 ft. EL 13-P-20, IP 125 bbl., McClosky 2,590-94 ft., TD 2,596 ft.

**GLENVILLE**—McLean, April; Sohio Petroleum Co. 1 Sourbeer-Baird-Church Unit, NW NW SE 19-N-28, IP 214 bbl., McClosky 2,010-13 ft., TD 2,014 ft.

**GRIFFITH**—Daviess, October; Roy Pledger 7 O'Bryan, 2,940 ft. NL and 390 ft. EL 14-P-28, IP 90 bbl., McClosky, 1,803-07 ft., TD 1,856 ft.

**MORGANFIELD**—Union, August; Sun Oil Co. 1-B Reisinger, 1,280 ft. NL and 821 ft. EL 3-N-19, IP 126 bbl., McClosky 2,684-91 ft., TD 2,704 ft.

**MORGANFIELD, SOUTH**—Union, July; Sun Oil Co. 1-B J. Reyburn, 1,840 ft., SL and 300 ft. EL 22-O-19 ft., IP 123 bbl., Cypress 2,267-93 ft., TD 2,293 ft.

**ROGERS LANDING**—Henderson, June; Sun Oil Co. 2 Roy Duncan, SE NW SE 23-O-25, IP 25 bbl., Tar Springs 1,672-83 ft., TD 1,977 ft.

**WABASH ISLAND**—Union, November; I. W. Hartman 2 Vance Meredith, 2,390 ft. NL and 850 ft. EL 11-6-18, IP 45 bbl., Biehl sand 1,536-40 ft., TD 2,350 ft.

## EASTERN KENTUCKY

### NEW POOLS

**VAN CLEAVE**—Breathitt, July; Caputo & Epperson 1 Cundiff, 16-N-74, Corniferous, IP 15 bbl., TD 1,528 ft.

## MICHIGAN

### NEW POOLS

**ADAMS, SOUTH (REVIVED).**—Bay, March; Ervin Major 1 McQuarrie, NW NW NW 1-18n-3e, 50 bbl., Richfield, TD 4,260 ft., (old well drilled deeper).

**ALAMO.**—Kalamazoo, March; Ashby Oil & Gas Co. 1 Williams et al., NW NW NE 30-1s-12w, Traverse, 1,380 ft., IP 10 bbl., TD 1,314 ft.

**BARD.**—Gladwin, May; W. L. McClanahan 1 Rhinehart, NE NE NW 6-17n-2w, Dundee, 3,880 ft., IP 50 bbl., TD 3,948 ft.

**BILLINGS.**—Gladwin, March; Socony-


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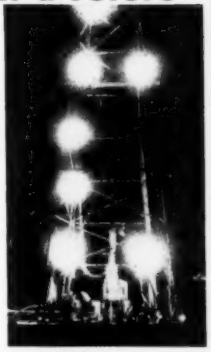

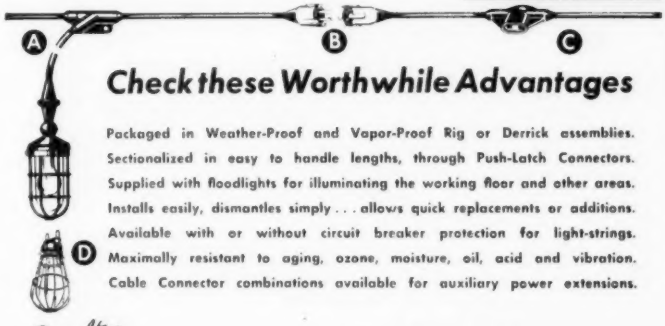


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Vacuum Oil Co., Inc., 1 Wolverine Power Co. and Arehart, SW SE SE 2-17n-1e, Dundee, 3,435 ft., IP 20 bbl., TD 3,558 ft.

**BUTMAN.**—Gladwin, July; H. E. Bell 1 Bronson & Fryling, NE NW NW 13-20n-1w, Dundee, 3,536 ft., IP 62 bbl., TD 3,602 ft.

**BUTMAN (RICHFIELD).**—Gladwin, December; Superior Oil Co. 1 Kenyon, NE NW SW 12-20n-1w, Richfield, 4,920-30 ft., IP 100 bbl., TD 5,027 ft.

**CROOKED LAKE.**—Allegan, June; Ohio Oil Co. 1 Jeran et al., SE SE SE 25-2n-15w, Traverse, 1,276 ft., IP 35 bbl., TD 1,282 ft.

**FREEPORT.**—Barry, June; Fisher-McCall Oil & Gas Co., Inc., 1 Steckle, SE NE NW 6-4n-8w, Traverse, 2,007 ft., IP 30 bbl., TD 2,042 ft.

**ELMWOOD (REVIVED).**—Tuscola, November; O. H. Neal 1 Winchester, SE NE NW 21-14n-10e, Dundee, 2,557 ft., IP 90 bbl., TD 2,742 ft.

**JENNINGS.**—Missaukee, January; Sohio Petroleum Co. 1 State-Caldwell, C NW 30-23n-8w, Stray, IP 892,000 cu. ft. of gas, TD 1,166 ft.

**LEE, SOUTH.**—Allegan, March; Norman L. Stevens 1 Rivard, SE SW NW 31-1n-15w, Traverse, 1,619 ft., IP 230 bbl., TD 1,172 ft.

**MARTIN.**—Allegan, January; Basin Oil Co. 1 Noteboom, NW SW NW 18-2n-11w, Traverse, 1,617 ft., IP 18 bbl., TD 1,618 ft.

**MEARS.**—Oceana, March; McClanahan Oil Co. and George F. Herr 1 Dykstra, NE SE NE 34-15n-18w, Dundee, 2,200 ft., IP 240 bbl., TD 2,211 ft.

**PARIS.**—Mecosta, June; John A. Thompson 1 Cox, NW NW NE 28-16n-10w, Traverse, 2,869 ft., IP 250 bbl., TD 2,890 ft.

**PULLMAN.**—Allegan, August; W. Pencer Cook, Inc., and H. L. Wadsworth 1 Marshall, SE NE NE 11-1n-16w, Traverse, 1,183 ft., IP 360 bbl., TD 1,187 ft.

**TRENT.**—Muskegon, February; P. K. Degenther 1 Herman, SE SE NE 19-10n-13w, Traverse, 2,038 ft., IP 90 bbl., TD 2,042 ft.

**WOLF LAKE.**—Muskegon, September; P. K. Degenther 1 Lynch, NE SE SE 7-10n-15w, Berea, 1,040 ft., IP 539,000 cu. ft. of gas, TD 2,250 ft.

**UNNAMED.**—Allegan, November; Robert Devine, Clyde Miller, J. W. Lang Co. 1 Brenner et al., NW SE SW 36-3n-13w, Traverse, 1,506 ft., IP 10 bbl., TD 1,518 ft.

**UNNAMED.**—Allegan, October; Ford Oil Co. 1 Kaminski, SE SE SE 6-1n-15w, Traverse, 1,139 ft., IP 7 bbl., TD 1,134 ft.

**UNNAMED.**—Allegan, December; Ralph Perry and Ralph Bradley 1 Nykamp, NW NW NE 8-2n-12w, Traverse, 1,775 ft., IP 3 bbl., TD 1,781 ft.

**UNNAMED.**—Allegan, December; Lowell Bernhardt 1 Swanty & Peterson, NE SE NE 30-2n-12w, Traverse, 1,465 ft., IP 30 bbl., TD 1,468 ft.

**UNNAMED.**—Bay, September; Don Rayburn 2 Cooper-Lucht, NE SW NE 29-17n-4e, Traverse, 2,105 ft., IP 60 bbl., TD 2,283 ft.

**UNNAMED.**—Kalamazoo, November; William C. Vanderberg, Jr., 1 Reynolds, SE SE SW 5-2s-10w, Traverse, 1,405 ft., IP 30 bbl., TD 1,435 ft.

**UNNAMED.**—Newaygo, December; Admiral Oil Co. 1 Dastick et al., SE NE NE 9-14n-14w, Berea, 1,512 ft., IP 3 bbl., TD 2,142 ft.

**UNNAMED.**—Oceana, December; Mercer Oil Co. 1 Brazee, NW SW NW 13-14n-18w, Traverse, 1,670 ft., IP 40 bbl., est., TD 2,276 ft.

### NEW PAYS

**ISABELLA.**—Isabella, February; Roosevelt Oil & Refining Corp. 3 Gas Unit, NW SW SW 7-15n-4w, Stray sand, 1,456 ft., IP 3,100,000 cu. ft. of gas, TD 1,473 ft.

**LOGAN.**—Ogemaw, February; Sun Oil Co. 1 Prescott et al., NW SE NW 25-22n-4e, IP 560,000 cu. ft. of gas, Coldwater Stray sand, TD 3,129 ft., also an extension.

**OTISVILLE.**—Genesee, October; Clyde L. Palmer 1 Lanfear, NW SE NE 6-9n-8e, Berea, 1,437 ft., IP 25 bbl., TD 1,459 ft.

**PARIS.**—Mecosta, September; Cities Service Oil Co. 1 Brennan, SE NE NW 28-16n-10w, Dundee, 3,404 ft., IP 1,840,000 cu. ft. of gas, TD 3,545 ft.

**STONY LAKE.**—Oceana, December; Turner Petroleum Corp. 1 Rabe, SW NE NE 9-13n-18w, Berea, 931 ft., IP 7 bbl., TD 942 ft.

## CALIFORNIA

### NEW POOLS

**ANTELOPE HILLS.**—Kern, June; Independent Exploration Co. 83 Bolton, 27-27s-19e, gas, 2,022 M.c.f., 1 bbl. per day, condensate, TD 4,313 ft.

**ARROYO GRANDE.**—San Luis Obispo, September; C. W. Colgrove 43-5 McDonald, 5-32s-13e, IP 125 bbl., 15.3° gravity, 2,988-3,015 ft., TD 3,198 ft.

**BELGIAN ANTICLINE.**—Kern, February; Pacific Western Oil Corp. 14-30 Midway-McKittrick A, 30-30s-22e, gas, 4,000 M.c.f., 5,220-5,320 ft., fault block, Eocene, "84" zone, TD 5,833 ft.

**CAT CANYON, EAST.**—Santa Barbara, April; Union Oil Co. 1 Bonetti, 19-9n-32w, IP 93 bbl., 15° gravity, Miocene, Monterey, plugged to 3,531 ft., TD 4,002 ft.

**CHINO HILLS.**—San Bernardino, June; Grayco Oil Co. 2 Grayco, 13-3s-8w, IP 150 bbl., TD 4,100 ft.

**CYMRIC.**—Kern, September; Carneros Oil Co. 4 Anderson Community, 19-29s-21e, IP 125 bbl., 23.9° gravity, 2,368-2,419 ft., Pliocene, Phacoides, new fault block in Salt Creek field, TD 2,420 ft.

**DEVILS DEN.**—Kern, December; Universal Consolidated Oil Co. 1 Devils Den fee, 23-25s-18e, IP 75 bbl., 18° gravity, new fault block, Miocene, perforated interval, 2,308-1,576 ft., TD 2,311 ft.

**DYER CREEK.**—Kern, April; W. R. Gerard 1 Gerard-Cairns, 11-26s-27e, IP 50 bbl., 16° gravity, TD 2,305 ft.

**EDISON.**—Kern, June; R. E. Havenstrite, San Joaquin Drilling and Rawn 1 Bowles, 35-30s-29e, IP 200 bbl., 31.7° gravity, Miocene, TD 3,728 ft.

**EDISON, WEST.**—Kern, October; Roths-


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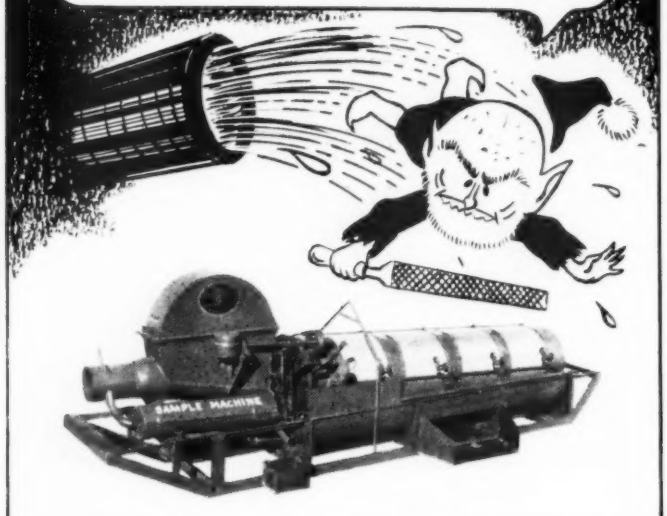


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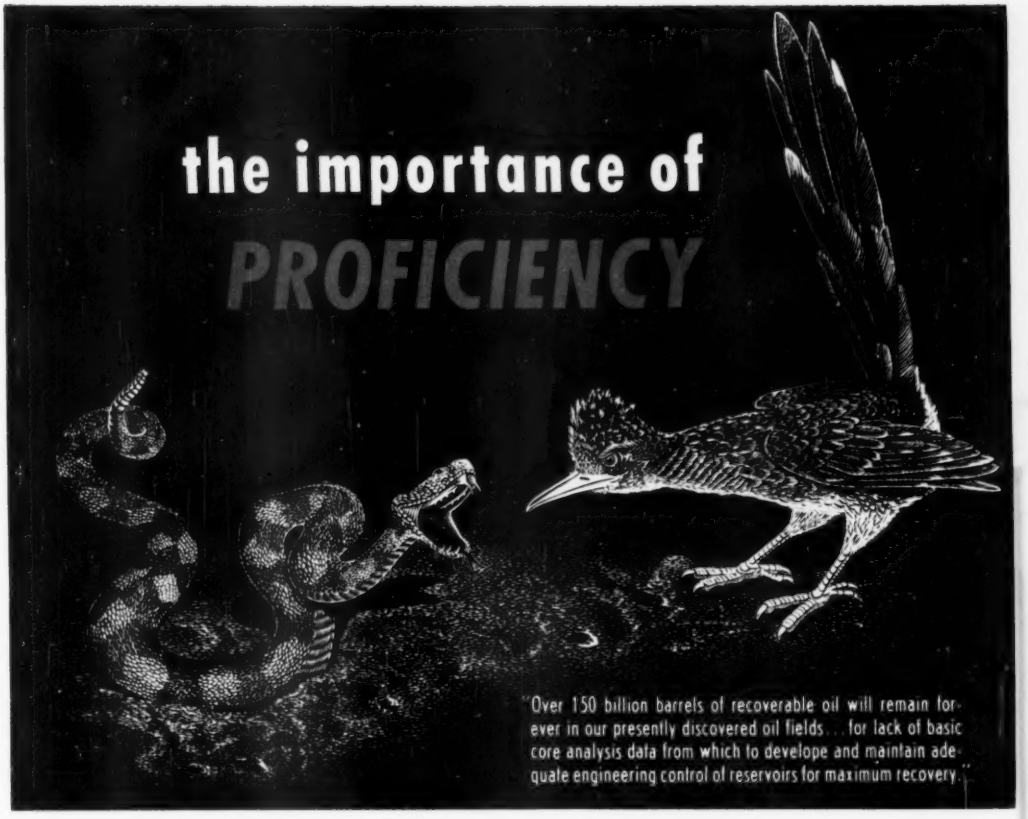
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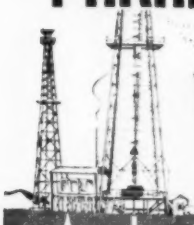
# PARAFFIN DEPOSITION



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child Oil Co. 1 Giumarra, 22-30s-29e, IP 132 bbl., 16.6° gravity, Pliocene, Chanac, and Miocene, Santa Margarita, TD 3,029 ft.

**EUREKA.**—Humbolt, March; Texas Co. 4 Holmes-Eureka, 23-3n-1w, gas, 2,785 M.c.f., TD 4,429 ft.

**FLOURNAY.**—Tehama, July; Buttes Oilfields Inc. 1 Corning Community, 1-24n-3w, gas, 5,170 M.c.f., TD 1,525 ft.

**FOUR DEER.**—Santa Barbara, September; Sunray Oil Co. 13 Los Flores, 9-8n-33w, IP 100 bbl., 30.4° gravity, fault block, chert zone, TD 6,020 ft.

**GREELEY.**—Kern, May; General Petroleum Corp. 38-23 Calder KCL, 23-29s-25e, IP 400 bbl., 35° gravity, producing interval 8,815-35 ft., upper Miocene, Stevens, TD 12,733 ft. Discovery well of Calder field.

**MATTOLE.**—Humbolt, March; Paul N. Snyder 1 Etter, 36-2s-1w, IP 2 bbl., 38.6 gravity, TD 1,933 ft.

**MONROE SWELL.**—Monterey, June; Texas Co. 1 Beedy, 19-19s-7e, IP 159 bbl., 14 gravity, TD 3,000 ft.

**POSO CREK.**—Kern, November; Terminal Drilling Co. 36-2, 36-27s-27e, IP 2 bbl., 15 gravity, Vedder, TD 2,839 ft.

**PUENTE-WALNUT.**—Los Angeles, January; Richfield Oil Corp. 1 Vanderhoof, 10-2s-10w, IP 26 bbl., 18° gravity, producing interval 1,377-1,437 ft., Pliocene, Repetto sand, location ½ miles southeast Walnut field, TD 1,874 ft.

**SAN ARDO.**—Monterey, March; Superior Oil Co. 1 Orradre, 6-23s-11e, IP 100 bbl., 12 gravity, TD 2,569 ft.

**SAN ARDO.**—Monterey, June; Jergins Oil Co. 18-18 Hamby, 18-23s-11e, IP 146 bbl., 11° gravity, TD 2,785 ft.

**SAN JOAQUIN.**—Fresno, January; Pacific Western Oil Corp. 71 Schramm, 31-15s-17e, IP 280 bbl., 27.8° gravity, Eocene, TD 7,036 ft.

**SOUTH BELRIDGE.**—Kern, March; Richfield Oil Corp. 1 Colm, 24-28s-20e, IP 21 bbl., 28° gravity, Pliocene, Etchegoin, TD 1,100 ft.

**SOUTH CUYAMA VALLEY.**—Santa Barbara, May; Richfield Oil Corp. 81-35 Homan, 35-10n-27w, IP 1,500 bbl., 34.2° gravity, lower Miocene, Dibblee, TD 4,392 ft. Discovery well South Cuyama field.

**SUISAN BAY.**—Solano, March; Standard Oil Co. of California 2 Honker Community, gas, 868 M.c.f., TD 7,008 ft.

**TEJON HILLS.**—Kern, February; Steele Petroleum Co. 2 Roco, 15-11n-18w, IP 50 bbl., 28° gravity, Miocene, Santa Margarita, TD 648 ft.

**TEJON HILLS.**—Kern, March; Tejon Hills Oil Co. 13 Tejon Hills, 11-11n-18w, 40 bbl., 28° gravity, Miocene, Santa Margarita, TD 665 ft.

**WEST MOUNTAIN.**—Ventura, May; Kirk Oil Co. 1 Richardson Community, 14-3n-21w, IP 60 bbl., 25° gravity, TD 5,013 ft.

### NEW PAYS

**BUTTONWILLOW.**—Kern, October; Standard Oil Co. of California 27-6 KCL, 5-28s-23e, gas, 3,160 M.c.f., TD 13,614 ft.

**DEVILS DEN.**—Kern, May; Honolulu Oil


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THE OIL AND GAS JOURNAL

Box 1260 Tulsa 1, Okla.

Co. 67 Altieretz, 14-25s-18e, IP 208 bbl., 18° gravity, Krevenhagen, TD 2,505 ft.

**EDISON.**—Kern, August; HKO Oil Co. 1 HKO, 35-30s-29e, IP 5 bbl., 19° gravity, TD 3,172 ft.

**GUIJARRAL HILLS.**—Fresno, May; Barnsdall Oil Co. 73-34-2 Allison, IP 250 bbl., 38.2° gravity, TD 8,671 ft.

**McVAN.**—Kern, November; General Drilling Co. C-8 Fitzhugh USL, 14-27s-27e, IP 120 bbl., 18° gravity, upper Vedder, TD 3,610 ft.

**OJAI.**—Ventura, June; Humble Oil & Refining Co. 1 Theo. Hammond, 18-4n-22w, IP 100 bbl., 25° gravity, TD 4,350 ft.

**PLACERITA CANYON.**—Los Angeles, January; Newhall Refining Co. 1 Philbert, IP 108 bbl., 15° gravity, TD 1,400 ft.

**PLACERITA CANYON.**—Los Angeles, March; Ramon J. Somovia 1 Juanita, 31-4n-15w, IP 375 bbl., TD 1,835 ft.

**PLEASANT CREEK.**—Yolo, June; Shell Oil Co. 4-1 Unit, 8-8n-1w, gas, 9,900 Mcf, TD 2,859 ft.

**RUSSELL RANCH.**—San Luis Obispo, February; Richfield Oil Corp. 18-30 F. R. Anderson, 30-11n-27w, IP 1,455 bbl., 37.8° gravity, Temblor-Vaqueros, Colgrove sand. Lower zone in White Rock area, TD 3,642 ft.

**RUSSELL RANCH.**—Santa Barbara, February; Hancock Oil Co. 22-25 Wood-Callahan, 25-11n-28w, IP 550 bbl., 34° gravity, lower Miocene, Dibblee sand, new zone in Norris area, TD 3,610 ft.

**RIO VISTA.**—San Joaquin, June; Brazos Oil & Gas Co. 3 Gardiner, 26-4n-3e, gas, 4,000 Mcf., TD 5,350 ft.

**TEJON.**—Kern, September; Rose L. Bright 1 Bright, 34-11n-19w, IP 290 bbl., 27° gravity, Reserve sand, TD 4,542 ft.

**WASCO.**—Kern, September; Standard Oil Co. of California 5 Mushrush, 7-27s-24e, IP 375 bbl., 40° gravity, Eocene, TD 15,866 ft.

## ROCKY MOUNTAIN AREA

### WYOMING

#### NEW POOLS

**BORIE.**—Laramie; The California Co. 1 Morton-King, CE¼ NW SW 13-13n-68w, TD 11,374 ft., IP 173 bbl., 38.4° gravity, Muddy, 8,483-8,570 ft.

**FRISBY, SOUTH.**—Washakie; General Petroleum Corp. 37-X-24-G, NW SE SW 24-47n-92w, TD 11,665 ft., IP 81 bbl., 32.5° gravity, Phosphoria, 10,575-10,665 ft.

**HAY CREEK.**—Weston; Schlanker Bros. 1 Sterling, C NE SW 33-46n-66w, TD 6,446 ft., IP 55 bbl., Newcastle, 6,190 ft.

**LAKE CREEK.**—Hot Springs; Barnsdall Oil Co. 1 Unit, C SW NE 14-43n-92w, TD 3,796 ft., IP 144 bbl., 31° gravity, Tensleep, 3,543-3,796 ft.

**LIGHTNING CREEK.**—Niobrara; Atlantic Refining Co. 1 State, NE NW NW 36-35n-66w, TD 3,991 ft., IP 297 bbl., 41.7° gravity, basal Sundance 3,870-90 ft.

**LITTLE SAND DRAW.**—Hot Springs; Seaboard Oil Co.-Husky Refining Co. 1 Government, NW NE SW 2-44n-96w, TD 6,119 ft., IP 250 bbl., 35° gravity, Tensleep, 6,055-6,119 ft.

**LODGEPOLE.**—Weston; Bay Petroleum Co. et al., 1 Christensen-Davis, C NW SE 9-44n-66w, TD 6,737 ft., IP 55 bbl., Dakota, 6,688-6,732 ft., recompletion.

**MURPHY DOME.**—Hot Springs; Farmers Union Central Exchange 1 Shad, SE SE SE 6-43n-91w, TD 5,210 ft., IP 8½ bbl., 34° gravity, Tensleep, 4,364-4,530 ft.

**RIVERTON.**—Fremont; Atlantic Refining Co. 1 Tribal, C SW SE 25-1s-4e (WRM), TD 11,884 ft., IP 485 bbl., 48.2° gravity, Tensleep, 11,665-11,884 ft.

**SAGE SPRING CREEK.**—Natrona; Amerada Petroleum Corp. 1-Unit, C SW SE 30-37n-77w, TD 9,539 ft., IP 135 bbl., 34.7° gravity, Dakota 7,250-69 ft.

**SALT WELLS.**—Sweetwater; Husky Refining Co.-Continental Oil Co. 1 Unit, C SW NW 11-14n-103w, TD 7,215 ft., IP 12,625,000 cu. ft. of gas, Dakota, 6,262-86 ft.




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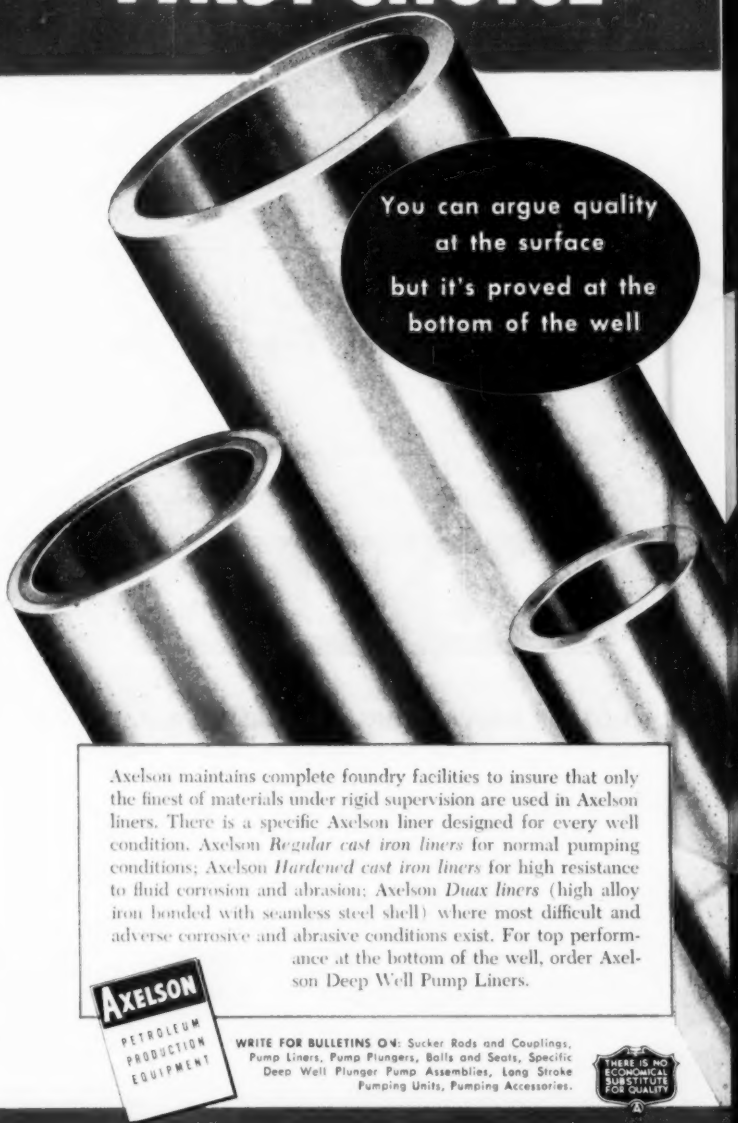


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**SKULL CREEK, SOUTHEAST.**—Weston, Parker & Simmons 1 Government-Wright, SW NE SW 24-44n-62w, TD 2,940 ft., IP 32 bbl., Newcastle, 2,934 ft.

**SUSSEX.**—Johnson; Continental Oil Co. 5 Unit, SE SW NW 23-42n-78w, TD 7,485 ft., IP 264 bbl., 42° gravity, Lakota 7,458-85 ft.

### NEW PAYS

**BEAVER CREEK.**—Fremont; Stanolind Oil and Gas Co. 11 Unit, CN½ SE 10-33n-96w, TD 10,903 ft., IP 471 bbl., 45.6° gravity, Tensleep, 10,442-10,903 ft.

**ENOS CREEK.**—Hot Springs; Ohio Oil Co.-Stanolind Oil & Gas Co. 1 L. U. Sheep, SE SW NW 25-46n-100w, TD 7,139 ft., IP 160 bbl., Tensleep 6,365-6,488 ft.

**GOLDEN EAGLE.**—Hot Springs; Phillips Petroleum Co.-Pioneer Oil Co. 1 Golden Eagle, NW SE SW 19-45n-97w, TD 9,582 ft., IP 484 bbl., 41.5° gravity, Tensleep 9,344-9,550 ft.

**HAMILTON DOME.**—Hot Springs; Argo Oil Corp. 41-T Placer, SE NE SE 14-44n-98w, TD 3,506 ft., IP 25 bbl., Madison, 3,105-3,506 ft.

**HATFIELD DOME.**—Carbon; Ohio Oil Co. 4 UPRR, C SE SE 35-20n-88w, TD 4,450 ft., IP 40 bbl., Nugget, 4,320-4,420 ft.

**LITTLE BUCK CREEK.**—Niobrara; Continental Oil Co. 14 E.L.C.U.B., NE NE SE 26-36n-64w, TD 6,531 ft., IP 450 bbl., First Lee sand, 5,751-82 ft.

**LITTLE SAND DRAW.**—Hot Springs; Seaboard Oil Co.-Husky Refining Co. 3 Government, NW SW NW 2-44n-96w, TD 6,166 ft., IP 320 bbl., Embar, 5,940-6,016 ft.

**PILOT BUTTE.**—Fremont; Superior Oil Co. 1 Sheldon-Dobler-Community, CE½ NE NW 27-3n-1w (WRM), TD 3,600 ft., IP 56 bbl., Muddy, 3,533-3,600 ft.

## COLORADO

### NEW POOLS

**ASBURY PARK.**—Mesa; Amerada Petroleum Corp. 1 Unit, C SE NE 14-9s-101w, TD 4,223 ft., IP 2,000,000 cu. ft. of gas, Dakota, 2,836-82 ft.

**OAK CREEK.**—Routt; Havenstrite Oil Co. 2 Ryles, NW SW NE 2-3n-86w, TD 6,747 ft., IP 300 bbl., 38° gravity, Morrison, 6,305-6,747 ft.

## MONTANA

### NEW POOLS

**BIG COULEE-HAILSTONE DOME.**—Golden Valley; The Texas Co. 1-D NPRR, C SW SW 31-5n-20e, TD 4,581 ft., IP 21,000 cu. ft. of gas, Morrison, 2,040-70 ft.

**CLARK FORK.**—Carbon; British American Oil Producing Co. 1 Government, C NE NE 26-9s-22e, TD 9,146 ft., IP 2,244,000 cu. ft. of gas and 31 bbl. condensate, Dakota sand, 7,548-60 ft.

**DEVILS POCKET.**—Musselshell; Hanlon et al., 2 Hanlon-Dalton, NE SW NE 9-10n-22e, TD 2,472 ft., IP 60 bbl., Heath, 1,600-40 ft.

**JACK CREEK.**—Carbon; Shupak et al., 1 Parker, SW SW SE 13-7s-23e, TD 510 ft., IP 125 bbl., 39.8° gravity, Dakota, 506-10 ft.

**SUMATRA.**—Rosebud; The Texas Co. 1 Northern Pacific, NE NE NE 5-9n-34e, TD 6,006 ft., IP 55 bbl., Amsden, 4,330-4,415 ft.

### NEW PAYS

**BOWES.**—Blaine; Northern Ordnance, Inc. 1 Guertzgen, SW NW NE 2-31n-19e, TD 3,586 ft., IP 125 bbl., Ellis, 3,378-3,410 ft.

## NORTHWESTERN NEW MEXICO

### NEW POOLS

**GALLIVAN AREA.**—Rio Arriba; Jim Gardner et al., 1 Dunham, C SW NW 14-25n-2w, TD 3,492 ft., IP 400,000 cu. ft. of gas, Pictured Cliffs, 3,416 ft.

**GLADE.**—San Juan; Southern Union Production Co. 1 Richardson, NW SE SE 10-31n-12w, TD 5,330 ft., IP 5,000,000 cu. ft. of gas, Point Lookout, 5,033-5,330 ft.

## CANADA

### NEW POOLS

**BARRHEAD.**—Imperial Oil, Ltd., and Stanolind Oil & Gas Co. 1 Barrhead, LSD 15, 10-58-5w5, Madison lime around 4,000 ft., IP 36 bbl. per hour, gravity 23°, TD 6,414 ft.

**BON ACCORD.**—Imperial Oil, Ltd., 1 Bon Accord, LSD 1, 29-56-23w4, Devonian (D2) around 3,600 ft., IP 269 bbl. per day, gravity 34°, TD 4,630 ft.

**CAMPBELL.**—Redwater Leaseholds, Ltd. 1 Campbell, LSD 1, 28-54-25w4, lower Cretaceous, 3,704-20 ft., IP 50 bbl. per day, gravity 35°, TD 5,008 ft.

**EXCELSIOR.**—Imperial Oil, Ltd., 1 Excelsior, LSD 13, 3-56-24w4, Devonian (D2), 3,820-40 ft., IP 792 bbl. per day, gravity 35°, TD 3,495 ft.

**GOLDEN SPIKE.**—Imperial Oil, Ltd., 1 Schoepp, LSD 9, 22-51-27w4, Devonian (D3), 5,363-5,907 ft., IP 12,000 bbl. per day, gravity 38°, TD 6,082 ft.

**JOSEPH LAKE.**—General Petroleums, Ltd., Superior Oils, Ltd., et al 1 Joseph Lake, LSD 11, 22-50-22w4, Viking sand, 3,264-65 ft., IP 528 bbl. per day, gravity 38°, TD 5,215 ft.

**NORMANDVILLE.**—Imperial Oil, Ltd., 1 Normandville, LSD 1, 16-79-22w5, Devonian, 6,730-45 ft., IP 1,880 bbl. per day, TD 7,424 ft.

**STETTLER.**—Canadian Gulf Oil Co. 4 Ellis, LSD 4, 10-38-20w4, dual completion, Devonian (D2 and D3), IP 3,000 bbl. per day, gravity 31°, TD 5,358 ft.

**STETTLER.**—British Empire Oil Developments, Ltd., 1 Stettler, LSD 4, 27-38-20w4, 3 miles north Gulf discovery, Devonian (D2), 5,262-28 ft., IP 1,000 bbl. per day, TD 5,403 ft.

**STETTLER.**—Casagama Oils, Ltd., 1 Casagama, LSD 5, 7-39-19w4, 7 miles northeast Gulf discovery, lower Cretaceous around 4,618 ft., IP 190 bbl. per day, TD 5,350 ft.

**VOLMER.**—R. W. Development Co. 1 Volmer, LSD 7, 16-55-25w4, lower Cretaceous, 3,670-76 ft., IP 36 bbl. per day, gravity 35°, TD 3,681 ft.

**WHITEMUD.**—Imperial Oil, Ltd., 1 Whitemud, LSD 15, 14-51-25w4, lower Cretaceous around 4,080 ft., IP 235 bbl. gravity 38°, TD 6,258 ft.


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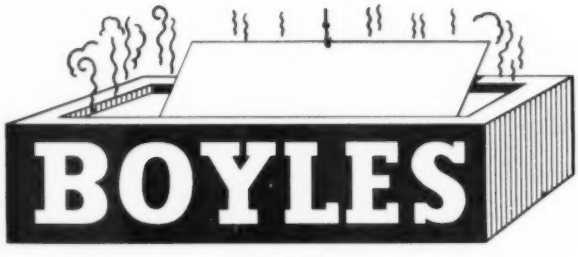


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# Discoveries, New Pays in 1949 —Their Size and Location

## SOUTHWEST TEXAS
(District 1)

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Big Foot, Frio; Navarro | 240 | 97 | 720 |
| Divot, Frio; Austin Chalk | 40 | 20 | 80 |
| Doering, Frio; 5,399 ft. | 40 | 20 | 200 |
| Green Franklin, McMullen; Wilcox | 80 | 20 | 240 |
| Jayeddie, Guadalupe; Austin Chalk | 160 | 20 | 320 |
| Lane, Caldwell; Austin Chalk | 80 | 20 | 160 |
| Lund, Travis; 987 ft. | 40 | 14 | 40 |
| Marsha, Bastrop; Dale Limestone | 40 | 12 | 80 |
| North Lockhart, Caldwell; Austin Chalk | 40 | 30 | 80 |
| Staples, Caldwell; 680 ft. | 20 | 30 | 40 |
| Wintergarden, Dimmit; 2,555 ft. | 40 | 14 | 40 |
| Wolf Creek, Guadalupe; Buda Lime | 120 | 45 | 360 |
| Unnamed, Caldwell; 872 ft. | 40 | 12 | 40 |
| Unnamed, Caldwell; Dale Lime | 20 | 30 | 40 |
| Unnamed, Frio; Navarro | 40 | 20 | 200 |
| Unnamed, Guadalupe; 2,225 ft. | 40 | 10 | 80 |
| Total | 1,140 | | 2,720 |

## TEXAS GULF COAST
(District 2)

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Angel City, Goliad; Slick-Wilcox | 160 | 8 | 50 |
| East Fannin, Goliad; Frio | 40 | 8 | 200 |
| East McFaddin, Victoria; 5,624 ft. | 40 | 2 | 40 |
| Fort Merrill, Live Oak; Pettus | 80 | 8 | 160 |
| Goebel, North, Live Oak; Slick | 80 | | 160 |
| Goree, Bee; Wilcox | 40 | 3 | 40 |
| Little Kentucky, No., Jackson; Frio | 40 | 5 | 100 |
| Maley, Bee; Wilcox | 160 | 12 | 400 |
| Melbourn, Calhoun; 8,587 ft. | 40 | 10 | 50 |
| North Hords Creek, Goliad; 7,655 ft. | 160 | 10 | 100 |
| North Minoak, Bee; 7,549 ft. | 160 | 10 | 100 |
| Provident City, E., Lavaca; 6,110 ft. | 200 | 7 | 200 |
| Rudman, Bee; 7,019 ft. | 120 | 6 | 150 |
| Saspamco, Wilson; Austin chalk | 40 | 21 | 80 |
| Schultz, Live Oak; Wilcox | 160 | 26 | 300 |
| West Boyce, Goliad; Pettus | 40 | 6 | 50 |
| Unnamed, Calhoun; 5,898 ft. | 40 | 8 | 50 |
| Unnamed, Goliad; 7,330 ft. | 160 | 20 | 100 |
| Unnamed, Jackson; 7,964 ft. | 40 | 6 | 50 |
| Unnamed, Live Oak; 7,845 ft. | 160 | 34 | 300 |
| Unnamed, Live Oak; 6,852 ft. | 160 | 8 | 100 |
| Total | 2,120 | | 2,780 |

*New Pays*

| | | | |
|---|---|---|---|
| Cabeza Creek, So., Goliad; 4,780 ft. | 40 | 7 | 50 |
| Coletto Creek, Victoria; Frio | 40 | 5 | 50 |
| Fort Merrill, Live Oak; lower Pettus | 40 | 14 | 80 |
| Mission Valley, Victoria; 8,585 ft. | 160 | 29 | 400 |
| Placedo, Victoria; 5,696 ft. | 40 | 4 | 50 |
| Sheriff, Calhoun; 9,018 ft. | 40 | 24 | 50 |
| Terrell Point, Goliad; 4,677 ft. | 40 | 6 | 50 |
| Victoria, Victoria; 4,587 ft. | 40 | 11 | 50 |
| Victoria Deep, Victoria; 5,262 ft. | 40 | 7 | 50 |
| West Weestache, Goliad; 8,060 ft. | 160 | 15 | 220 |
| Total | 640 | | 1,050 |

## TEXAS GULF COAST
(District 3)

*Discoveries*

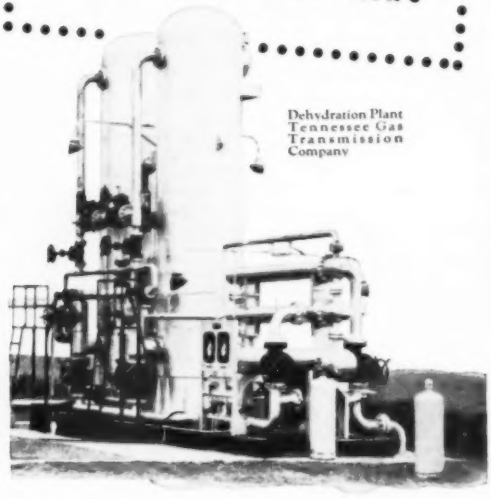
| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Collins Lake, Brazoria; two sands 9,182 and 9,850 ft. | 80 | 12 | 300 |
| Cypress, Harris; 7,024 ft. | 160 | 12 | 100 |
| East Beach Creek, Hardin; 6,464 ft. | 160 | 4 | 100 |
| E. Copeland Creek, Polk; 3,342 ft. | 40 | 10 | 30 |
| East Village Mills, Hardin; Yegua | 760 | 8 | 5,000 |
| Hannah Reef, Galveston; 10,674 ft. | 160 | 14 | 100 |
| Hartburg, Newton; lower Frio | 120 | 4 | 300 |
| Hicksbaugh, Tyler; 8,480 ft. | 40 | 4 | 50 |
| Hillebrandt, So., Jefferson; 8,438 ft. | 80 | 6 | 150 |
| Kennelly, Colorado; 6,796 ft. | 160 | 4 | 100 |
| Lick Branch, San Jacinto; 8,616 ft. | 80 | 10 | 300 |
| Mach, Wharton; 6,384 ft. | 160 | 4 | 500 |
| Mayes, East, Chambers; 8,794 ft. | 160 | 6 | 100 |
| Morgan's Creek, Polk; Jackson | 400 | 19 | 5,000 |
| New Taiton, Wharton; Wilcox | 160 | 30 | 100 |
| N. Oyster Bayou, Chambers; lower Frio | 160 | 3 | 100 |
| Old Salem, Newton; Wilcox | 40 | 16 | 50 |
| Peach Point, Brazoria; lower Frio | 160 | 70 | 100 |
| Prasifka, Wharton; 5,548 ft. | 320 | 6 | 5,000 |
| Sargent, Matagorda; 6,320 ft. | 80 | 5 | 150 |
| South Aldine, Harris; 7,089 ft. | 40 | 5 | 50 |
| West Conroe, Montgomery; 4,616 ft. | 40 | 5 | 50 |
| Unnamed, Austin; two sands 9,048 and 9,467 ft. | 40 | 28 | 50 |
| Unnamed, Brazoria; 10,656 ft. | 40 | 6 | 50 |
| Unnamed, Brazoria; 1,360 ft. | 40 | 21 | 50 |
| Unnamed (offshore), Galveston; 5,964 ft. | 160 | 4 | 100 |
| Unnamed, Grimes; Wilcox | 160 | 7 | 100 |
| Unnamed, Jefferson; 8,675 ft. | 160 | 12 | 100 |
| Unnamed; Jefferson; Frio | 160 | 5 | 100 |
| Unnamed, Liberty; Yegua | 40 | 6 | 50 |
| Unnamed, Montgomery; Cockfield | 160 | 8 | 100 |
| Unnamed, Polk; 7,118 ft. | 40 | 4 | 50 |
| Unnamed, Polk; Wilcox | 40 | 7 | 50 |
| Unnamed, San Jacinto; Cockfield-Yegua | 40 | 4 | 50 |
| Unnamed, Tyler; Cockfield | 40 | 1 | 50 |
| Unnamed, Waller; Wilcox | 160 | 14 | 100 |
| Total | 4,960 | | 18,730 |

*New Pays*

| | | | |
|---|---|---|---|
| Arch, Matagorda; 7,437 ft. | 80 | 1 | 200 |
| Big Creek, So. Flank, Fort Bend; 3,720 ft. | 40 | 10 | 50 |
| Big Creek, Fort Bend; 3,540 ft. | 200 | 6 | 1,000 |
| Buna, Jasper; 7,424 ft. | 160 | 4 | 100 |
| Copeland Creek, Polk; 7,054 ft. | 160 | 12 | 100 |
| Copeland Creek, Polk; Jackson series | 280 | 6 | 1,000 |
| Danbury, Brazoria; 8,200 ft. | 40 | 10 | 50 |
| East Hillister, Tyler; Cockfield | 40 | 3 | 50 |
| East Hilliser, Tyler; 7,333 ft. | 80 | 8 | 200 |
| Gillock, Galveston; 9,056 ft. | 120 | 7 | 500 |
| Gillock, Galveston; 8,712 ft. | 80 | 22 | 200 |
| Gillock, So., Galveston; 9,555 ft. | 200 | 5 | 1,000 |
| Hankamer, Liberty; 4,258 ft. | 240 | 36 | 1,000 |
| Hankamer, Liberty; 8,007 ft. | 80 | 14 | 200 |
| Hull, Liberty; 7,187 ft. | 40 | 17 | 50 |
| Hull (Daisetta), Liberty; 5,560 ft. | 40 | 4 | 50 |
| Hull, Liberty; 8,170 ft. | 40 | 8 | 50 |
| Hull, NW flank, Liberty; 7,676 ft. | 40 | 20 | 50 |
| Humble, Harris; 3,352 ft. | 40 | 28 | 50 |

# *Florite*

## Dries Natural Gas on a Transmission Line



Dehydration Plant
Tennessee Gas
Transmission
Company

AN INTERESTING use of a Floridin product is that of the Tennessee Gas Transmission Company at a compressor station on its main line at East Bernard, Tex. Twin adsorption towers filled with Florite serve alternately to dehydrate gas from local sources before it is admitted to the main line. While one tower is active, the other is being reactivated by means of a heating unit and a heat exchanger; and thus uninterrupted service is maintained. A Bureau of Mines dewpoint instrument is used for checking the efficiency of the adsorption bed.

Floridin products, adapted to a wide range of advanced modern uses, include several specially prepared forms of . . . . . .

**FULLERS EARTH**

as well as two grades—refining grade and desiccant grade—of Florite, which is a . . . . . .

**BAUXITE-BASED ADSORBENT**

Your inquiry will be given careful attention.

**FLORIDIN COMPANY**

Adsorbents . . . Desiccants . . . Diluents

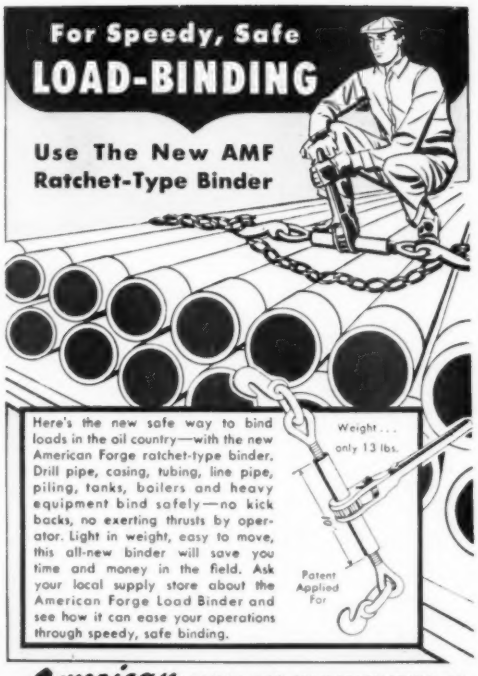
**Dept C, 220 Liberty St., Warren, Pa.**



**For Speedy, Safe**

# LOAD-BINDING

**Use The New AMF Ratchet-Type Binder**



Here's the new safe way to bind loads in the oil country—with the new American Forge ratchet-type binder. Drill pipe, casing, tubing, line pipe, piling, tanks, boilers and heavy equipment bind safely—no kick backs, no exerting thrusts by operator. Light in weight, easy to move, this all-new binder will save you time and money in the field. Ask your local supply store about the American Forge Load Binder and see how it can ease your operations through speedy, safe binding.




**American FORGE AND MANUFACTURING CO.**

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## EXPLOSION-PROOF MOTORS

**1 to 600 Hp.**

150 Hp. 3600 R.p.m. Explosion-Proof Motor with oil lubricated ball bearings

**CONTINENTAL ELECTRIC CO., Inc.**

Plants—Newark 5, N. J., Rockford, Ill.

*Continental*
**ELECTRIC MOTORS**

## TEXAS GULF COAST (Continued)

### New Pays

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Humble, Harris; 3,606 ft. | 40 | 8 | 50 |
| Humble, Harris; 3,552 ft. | 40 | 10 | 50 |
| Kubela, Wharton; 4,579 ft. | 320 | 6 | 3,000 |
| Liberty, So., Liberty; Yegua | 40 | 34 | 50 |
| Lick Branch, San Jacinto; 8,597 ft. | 80 | 14 | 200 |
| Lissie, Wharton; 9,582 ft. | 160 | 20 | 200 |
| Manvel, Brazoria; Marginulina | 40 | 7 | 50 |
| Manvel, Brazoria; Miocene | 240 | 20 | 2,000 |
| Nash, Fort Bend; Miocene | 80 | 21 | 200 |
| New Ulm, Austin; lower Wilcox | 40 | 10 | 50 |
| North Dayton, Liberty; 2,700 ft. | 120 | 10 | 500 |
| North Skillern, Tyler; Wilcox | 80 | 6 | 100 |
| North Stowell, Jefferson; two sands 5,938 and 5,444 ft. | 120 | 6 | 500 |
| Pierce Junction, Harris; 7,234 ft. | 40 | 6 | 50 |
| Saratoga, Hardin; 7,200 ft. | 600 | 35 | 5,000 |
| Saratoga, Hardin; 7,390 ft. | 120 | 105 | 500 |
| South Gist, Newton; 7,326 ft. | 160 | 6 | 100 |
| South Liberty, Liberty; Cook Mountain No. 1 | 40 | 72 | 50 |
| South Liberty, Liberty; Yegua | 40 | 28 | 50 |
| South Liberty, Liberty; 6,018 ft. | 40 | 10 | 50 |
| South Liberty, Liberty; 5,642 ft. | 40 | 20 | 50 |
| West Columbia, Brazoria; 6,180 ft. | 40 | 30 | 50 |
| West Columbia, Liberty; 6,026 ft. | 40 | 22 | 50 |
| Total | 4,560 | | 18,800 |

## SOUTHWEST TEXAS

(District 4)

### Discoveries

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Buena Vista, Starr; 1,760 ft. | 120 | 9 | 150 |
| Cement, Kleberg; 6,620 ft. | 40 | 8 | 50 |
| Daskam, Hidalgo; 4,253 ft. | 40 | 3 | 50 |
| Dinn, April; Cole | 400 | 3 | 3,000 |
| Flowella, Brooks; 7,345 ft. | 160 | 11 | 100 |
| Gregg Wood, Starr; Frio | 40 | 6 | 50 |
| Laguna Larga, Kleberg; Frio | 160 | 8 | 100 |
| La Sal Vieja, Willacy; 8,330 ft. | 80 | 3 | 200 |
| Lockhart, SE, Starr; Cockfield | 40 | 2 | 50 |
| Mud Flats, Aransas; Frio | 160 | 3 | 100 |
| Mustang Island, Nueces; 7,433 ft. | 40 | 9 | 50 |
| No. Chiltipin, Duval; Hockley | 160 | 4 | 400 |
| No. San Diego, Duval; 4,730 ft. | 40 | 7 | 50 |
| Palo Blanco, Brooks; 3,607 ft. | 40 | 5 | 50 |
| Rand Morgan, Nueces; 5,388 ft. | 40 | 2 | 50 |
| Realitos, East, Duval; upper Cole, mid. Cole | 240 | 8 | 750 |
| Rita, Kenedy; 7,076 ft. | 120 | 2 | 200 |
| Rowden, Duval; Basal Cole | 40 | 8 | 50 |
| Santa Fe, Brooks; 3,231 ft. | 40 | 5 | 50 |
| Santa Fe, S., Hidalgo; Frio | 40 | 6 | 50 |
| Saranosa, West, Duval; Government Wells | 80 | 2 | 200 |
| Viboras, Brooks; 8,123 ft. | 160 | 12 | 100 |
| Unnamed, Cameron; 7,536 ft. | 40 | 3 | 50 |
| Unnamed, Duval; 3,057 | 40 | 11 | 50 |
| Unnamed, Duval; 3,784 ft. | 40 | 1 | 50 |
| Unnamed, Duval; 3,572 ft. | 40 | 2 | 50 |
| Unnamed, Duval; Pettus | 40 | 4 | 50 |
| Unnamed, Hidalgo; 6,946 ft. | 40 | 16 | 50 |
| Unnamed, Nueces; 5,967 ft. | 40 | 1 | 50 |
| Unnamed, Nueces; 9,914 ft. | 160 | 34 | 100 |
| Unnamed, Nueces; 7,700 ft. | 160 | 30 | 100 |
| Unnamed, Nueces; 5,538 ft. | 40 | 10 | 50 |
| Unnamed, Starr; 6,220 ft. | 40 | 11 | 50 |
| Unnamed, Starr; 5,157 ft. | 40 | 5 | 50 |
| Total | 3,000 | | 6,500 |

### New Pays

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Alfred, Jim Wells; 4,575 ft. | 40 | 6 | 50 |
| Callallen, Nueces; 7,245 ft. | 40 | 3 | 50 |
| Coastal, Starr; 7,074 ft. | 120 | | 400 |
| Copano Bay, Aransas; 7,682 ft. | 40 | 5 | 50 |
| East Alfred, Jim Wells; 3,354 ft. | 40 | 5 | 50 |
| East Alta Mesa, Brooks; Mesa Sand | 80 | 20 | 200 |
| E. Plymouth, San Patricio; 5,130 ft. | 80 | 8 | 200 |
| East White Point; San Patricio; 6,766 ft. | 40 | 1 | 50 |
| Fulton Beach, Aransas; 7,045 ft. | 1,120 | 6 | 5,000 |
| Government Wells (Wilcox), Duval; Wilcox | 160 | 68 | 100 |
| Jay Simmons, Starr; 6,029 ft. | 480 | 4 | 5,000 |
| La Copita, Starr; Frio "B" | 40 | 8 | 50 |

### New Pays

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| La Copita, Starr, 6,798 ft. | 80 | 36 | 150 |
| La Copita, Starr; 6,563 ft. | 40 | 18 | 50 |
| Mariposa, Brooks; 7,780 ft. | 40 | 8 | 50 |
| Mercedes, Hidalgo; 7,266 ft. | 40 | 9 | 50 |
| Mercedes, Hidalgo; 6,858 ft. and 6,960 ft. | 40 | 20 | 50 |
| Minnie Bock, Nueces; Zone 12 | 40 | 6 | 50 |
| Palo Blanco, Brooks; 2,990 ft. | 80 | 7 | 150 |
| Sarita, Kenedy; 6,967 ft. | 40 | 16 | 50 |
| Sarita, Kenedy; 6,256 ft. | 40 | 10 | 50 |
| S. Richard King, Nueces; 5,440 ft. | 40 | 6 | 50 |
| W. Corpus Christi, Nueces; 8,343 ft. | 40 | 10 | 50 |
| W. Corpus Christi; Nueces; 9,843 ft. | 160 | 30 | 100 |
| Total | 2,960 | | 12,050 |

## EAST TEXAS

(Districts 5, 6, and 6-P)

### Discoveries

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Bud Lee, Smith; Paluxy | 80 | 12 | 200 |
| East Sherman, Grayson Strawn | 160 | 40 | 2,000 |
| Freestone, Freestone; Rodessa | 40 | 85 | 50 |
| Lakeview, Franklin; Paluxy | 80 | 5 | 200 |
| Mineola, Wood; sub-Clarksville | 40 | 36 | 50 |
| Nolan-Edwards, Wood; sub-Clarksville | 120 | 22 | 500 |
| North Lansing, Harrison; Rodessa | 40 | 32 | 50 |
| Pewitt Ranch, Titus; Paluxy | 120 | 29 | 400 |
| Pine Mills, Wood; sub-Clarksville | 80 | 13 | 200 |
| Red Springs, Smith; Rodessa | 80 | 36 | 200 |
| Tennessee Colony, Anderson; Rodessa | 40 | 20 | 50 |
| Trawick, Nacogdoches; Pettit | 40 | 36 | 50 |
| Walter Fair, Kaufman; Paluxy | 160 | 17 | 100 |
| Total | 1,080 | | 4,050 |

### New Pays

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Long Lake, Anderson; Rodessa | 80 | 6 | 100 |
| South Tyler, Smith; Rodessa | 80 | 20 | 100 |
| Total | 160 | | 200 |

## NORTH AND WEST CENTRAL TEXAS

(Districts 7-B and 9)

### Discoveries

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Acme, Clay; Caddo | 40 | 9 | 50 |
| Archer City, W., Archer; Strawn | 80 | 4 | 240 |
| Ater, Nolan; Ellenburger | 40 | 21 | 50 |
| Bomar, Fisher; Flippen | 40 | 24 | 50 |
| Clingingsmith, Montague; conglomerate | 80 | 182 | 240 |
| Daly, Wise; Caddo | 20 | 156 | 50 |
| DeMoss, Archer; Strawn | 40 | 50 | 50 |
| Goat Hill | 10 | 10 | 20 |
| Jack County Regular, Jack; conglomerate | 160 | 44 | 600 |
| Lawn, Taylor; Gardner | 40 | 18 | 50 |
| LeMaster, Cooke; sand | 40 | 7 | 50 |
| McLeod, Nolan; (?) | 40 | | 50 |
| Medders-Hancock, Archer; Vogtsberger | 80 | 31 | 240 |
| Pardue, Fisher; Swastika | 40 | 8 | 50 |
| Pardue, Fisher; Ellenburger | 40 | 36 | 50 |
| Pinckley, Taylor; Ingram | 10 | 4 | 20 |
| Post Oak, Jack; Strawn | 120 | 3 | 360 |
| Roby, Fisher; Swastika | 40 | 2 | 50 |
| South Haskell, Haskell; Canyon | 40 | 5 | 50 |
| Thrift, Wise; conglomerate | 40 | 28 | 50 |
| Unnamed, Archer; Caddo | 40 | 13 | 50 |
| Unnamed, Archer; Strawn | 40 | 10 | 50 |
| Unnamed, Archer; Caddo | 40 | 4 | 50 |
| Unnamed, Archer; Caddo | 40 | 26 | 50 |
| Unnamed, Archer; Strawn | 40 | 14 | 50 |
| Unnamed, Callahan; sand | 10 | 10 | 20 |
| Unnamed, Clay; Caddo | 40 | 25 | 50 |
| Unnamed, Clay; Caddo | 40 | 10 | 50 |
| Unnamed, Clay; Strawn | 40 | 15 | 50 |
| Unnamed, Coleman; sand | 10 | 17 | 20 |
| Unnamed, Coleman; Marble Falls | 40 | 44 | 50 |
| Unnamed, Comanche; Mississippian | 10 | 43 | 20 |

1. 6" x 3¼" x 7" — 50 H.P., 20-LB. SUCTION, 500-LB. DISCHARGE. 235,000 CU. FT. PER DAY.

2. 8" x 4¼" x 9" — 75 H. P., 20-LB. SUCTION, 600-LB. DISCHARGE. 402,000 CU. FT. PER DAY.

3. 8" x 4⅛" x 9" — 75 H.P., 20-LB. SUCTION, 700-LB. DISCHARGE. 382,000 CU. FT. PER DAY.

4. 7" x 4⅛" x 9" — 80 H.P., 40-LB. SUCTION, 600-LB. DISCHARGE. 547,000 CU. FT. PER DAY.

# SHOWN ABOVE ARE STANDARD SIZES OF

# "Packaged" PORTABLE

The eight sizes of Wilson Supply - Ingersoll-Rand "Packaged" Portable Compressors shown above represent but a few of the many machines now in service and on order.

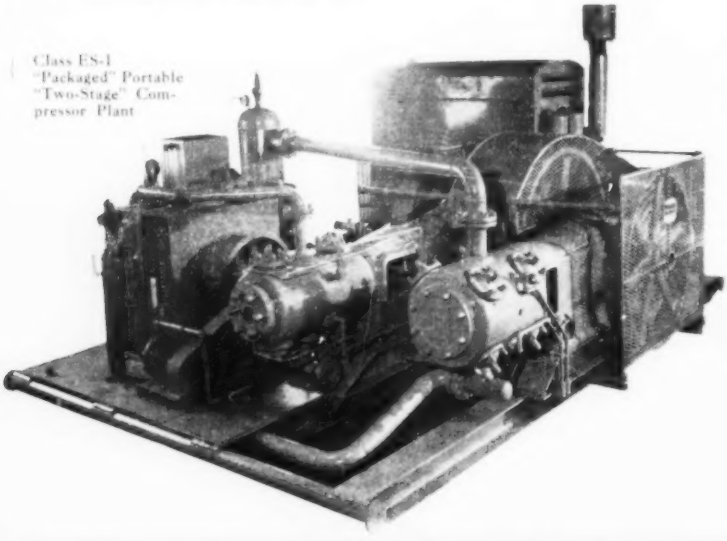
The demand for this outstanding equipment is increasing every month—its economical operation and varied applications being recognized more and more by the Producing and Pipe Line Industries.

These machines are mounted on heavy skids and are completely assembled. They require only connecting of the suction and discharge lines to be put in operation. They are readily transportable by truck.

This equipment is so designed and assembled that it may be maintained and serviced by your own field personnel.

These "Packaged" Portable Compressors take the place of more costly, permanent installations—and afford a worthwhile saving on gathering lines.

Especially adaptable for Gas-Oil lift and repressuring projects, these units can be furnished to meet specific requirements.



Class ES-1 "Packaged" Portable "Two-Stage" Compressor Plant

**Branch Stores**

TEXAS—Alice, Corpus Christi, Victoria, Bay City, Columbus, Barbers Hill, Beaumont, Kilgore, Monahans. LOUISIANA—Lake Charles, New Iberia, Houma, Harvey, Shreveport. ARKANSAS—Magnolia.

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# WILSON SUPP

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HOUSTO

**5** 9" x 4¼" x 9" — 80 H.P., 10-LB. SUCTION, 500-LB. DISCHARGE, 405,000 CU. FT. PER DAY.

**6** 4⅛" x 9" — 45 H.P., 200-LB. SUCTION, 600-LB. DISCHARGE, 630,000 CU. FT. PER DAY.

**7** 3½" x 11" — 85 H.P., 800-LB. SUCTION, 1750-LB. DISCHARGE, 1,792,000 CU. FT. PER DAY.

**8** 5¾" x 13" — 117 H.P., 200-LB. SUCTION, 700-LB. DISCHARGE, 1,600,000 CU. FT. PER DAY.

# WILSON SUPPLY-INGERSOLL-RAND

# COMPRESSORS...

Pictured in these two pages are both the "Single Stage" and "Double Stage" Wilson Supply - Ingersoll-Rand "Packaged" Portable Compressors. Note their completeness:

— *Horizontal, double acting, water jacketed Compressors, with forced feed lubricator.*

— *Waukesha Engine with combination gas-gasoline carburetor, penn safety switches, clutch, radiator and fan housing, air filter, exhaust silencer, water pump, slide rails, complete electric starter with battery, oil filter, and top cylinder oiler.*

— *Complete V-belt drive including both driving and driven sheaves and V-belts.*

— *Selected radiator type cooler for compressor cylinders, and air-cooled intercooler coil complete with centrifugal circulating pump.*

— *Air-cooled gas intercooler coil complete.*

— *Fuel gas pressure regulator and Volume tank.*

— *Welded and flanged gas line connections.*

— *Thermometer, and Thermometer Welds in all lines.*

— *Inlet Gas Scrubber, with complete Safety Valve, Drain Valve, Pressure Gauge, Armstrong Trap, and explosion proof, Automatic Engine Shutdown, liquid level control.*

— *All gas and water piping and Fittings.*

*— *Ingersoll-Rand Air-Gas Starter.*

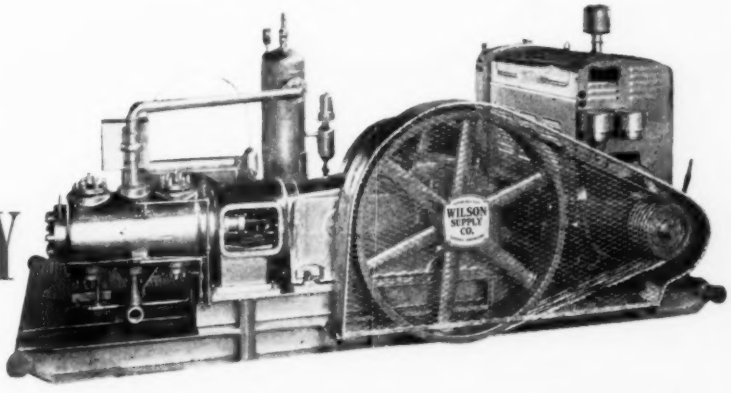
*— *Automatic Speed and Pressure controls.*

*— *Optional at extra cost.*

What are your needs? Check the sizes and specifications of the eight machines listed above and see if one of these Wilson Supply - Ingersoll-Rand "Packaged" Portable Compressors cannot save you money.

Contact your nearest Wilson Supply Company Store or write "Compressor Division," Wilson Supply Company, P. O. Drawer 19, Houston, Texas, for detailed information, and quotations. Please give suction and discharge pressures and volume to be handled.

Class ES-1
PORTABLE Booster
Compressor PLANT

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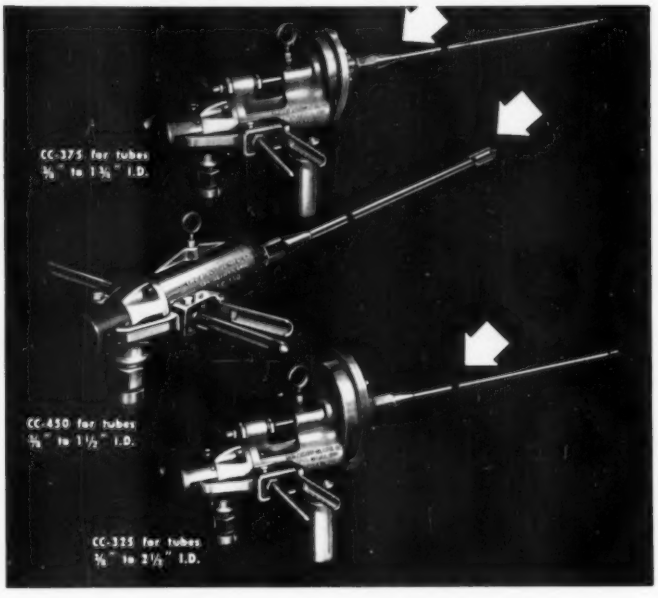
# these Condenser Cleaners




## PUT MORE LIFE into small tubes

Stretching the life of small tubes is an AIRETOOL specialty. A clean unit means more efficient heat transfer. The *right* cleaning gear plus regular attention assures refineries maximum tube life—minimum maintenance cost—more economical operations.

AIRETOOL outside mounted cleaners are *right* for your condenser and heat exchanger tubes. Teamed up with the *right* type of drill head, they meet every scale condition. The CB type drill (illustrated) has a carbide metal tip—will remove concrete-hard scale with perfect safety.

CB Drill removes hardest scale even when tubes are completely plugged.

Special features of these cleaners include:

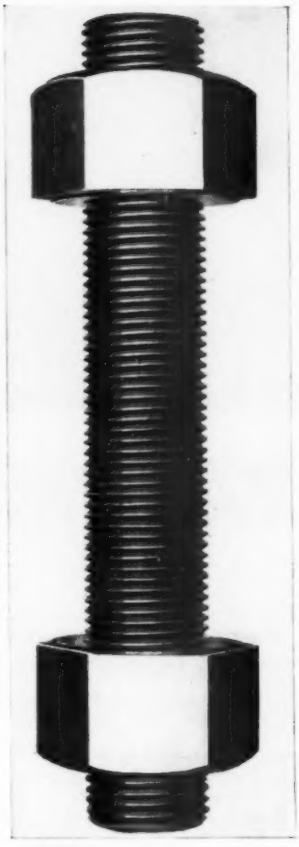
- handle valve which gives operator quick, positive control.
- water feeding device to keep drill head cool and scale cuttings flushed out.
- sturdy lightweight alloy steel construction.
- powerful air driven motor.

Insist on AIRETOOL tube maintenance gear. Cash in on longer tube life . . . lower maintenance costs . . . more economical operation. For full particulars write The AIRETOOL Manufacturing Co., 316 S. Center St., Springfield, Ohio.

**AIRETOOL**
MANUFACTURING COMPANY
SPRINGFIELD, OHIO

There's an AIRETOOL tube cleaner and tube expander for every type of tubular construction.

BRANCH OFFICES: NEW YORK, PHILADELPHIA, CHICAGO, HOUSTON, TULSA, BATON ROUGE.
REPRESENTATIVES IN PRINCIPAL CITIES.



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REPRESENTATION IN PRINCIPAL CITIES

## NORTH AND WEST CENTRAL TEXAS (Continued)

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Unnamed, Cooke; Strawn | 40 | 13 | 50 |
| Unnamed, Cooke; (?) | 10 | 10 | 20 |
| Unnamed, Fisher; Swastika | 20 | 6 | 30 |
| Unnamed, Fisher; Canyon | 80 | 8 | 100 |
| Unnamed, Jack; conglomerate | 160 | 5 | 500 |
| Unnamed, Haskell; Strawn | 120 | 4 | 500 |
| Unnamed, Haskell; Pennsylvanian | 40 | 20 | 50 |
| Unnamed, Jack; Mississippian | 120 | 22 | 350 |
| Unnamed, Jack, conglomerate | 160 | 12 | 500 |
| Unnamed, Jack; conglomerate | 160 | 24 | 500 |
| Unnamed, Jack; Caddo | 120 | 14 | 250 |
| Unnamed, Jack; Caddo | 80 | 34 | 150 |
| Unnamed, Jack; Ellenburger | 120 | 85 | 300 |
| Unnamed, Jack; conglomerate | 40 | 17 | 50 |
| Unnamed, Jones; Hope | 80 | 4 | 50 |
| Unnamed, Jones; sand | 10 | 21 | 20 |
| Unnamed, Montague; Caddo | 40 | 15 | 50 |
| Unnamed, Stephens; Marble Falls | 40 | 26 | 50 |
| Unnamed, Stephens; (?) | 80 | | 50 |
| Unnamed, Stephens; Caddo | 40 | 36 | 50 |
| Unnamed, Stephens; (?) | 40 | 4 | 50 |
| Unnamed, Stephens; Mississippian | 40 | 400 | 50 |
| Unnamed, Stephens; Mississippian | 80 | 146 | 150 |
| Unnamed, Throckmorton; Pennsylvanian | 40 | 10 | 50 |
| Unnamed, Throckmorton; Mississippian | 120 | 10 | 250 |
| Unnamed, Throckmorton; Mississippian | 80 | 31 | 150 |
| Unnamed, Wichita; Caddo | 80 | 23 | 100 |
| Unnamed, Wichita; Vogtsberger | 80 | 22 | 100 |
| Unnamed, Young; Mississippian | 120 | 124 | 250 |
| Unnamed, Young; Mississippian | 120 | 35 | 250 |
| Unnamed, Young; Caddo | 160 | | 450 |
| Total | 3,950 | | 8,380 |

*New Pays*

| | | | |
|---|---|---|---|
| Bird, Taylor; Cook sand | 80 | 4 | 250 |
| Daly, Wise; Caddo | 40 | 50 | 50 |
| Murray, Throckmorton; (?) | 10 | 18 | 20 |
| Thomas, Montague; sand | 40 | 11 | 50 |
| Total | 170 | | 370 |

## WEST TEXAS
(Districts 7-C and 8)

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Abell, NW., Crane; McKee | 280 | 375 | 1,120 |
| Baugh, Schleicher; Strawn | 40 | 10 | 50 |
| Buenos, Garza; San Andres | 80 | 10 | 320 |
| Cordova Lake, Crane; Devonian | 40 | 40 | 100 |
| Dermott, Scurry; Ellenburger | 40 | 40 | 50 |
| Dockery, Mitchell; Ellenburger | 40 | 10 | 50 |
| East Dollar Hide, Andrews; Devonian | 80 | 15 | 200 |
| Flanagan, Gaines; Ellenburger | 40 | 71 | 50 |
| Florence, Runnels; Pennsylvanian | 40 | 27 | 50 |
| Flying W, Winkler; Devonian | 80 | 84 | 200 |
| Gartner, Howard; Mississippian | 40 | 300 | 50 |
| Giesecke, Runnels; Gunsight | 20 | 12 | 50 |
| Good, Borden; Canyon | 320 | 100 | 1,600 |
| Harris, Gaines; Glorietta | 40 | 15 | 50 |
| Jimburt, Runnels; Gunsight | 80 | 17 | 100 |
| Lawson Simpson, Ector; Permian | 40 | 41 | 50 |
| Mound Lake, Terry; Pennsylvanian | 80 | 50 | 100 |
| North Gail, Borden; Sprayberry | 40 | 15 | 50 |
| North Winters | 110 | 14 | |
| Odom, Runnels; Strawn | 20 | 19 | 50 |
| Pegasus, Upton; Ellenburger | 120 | 60 | 10,000 |
| South Gail, Borden; Wolfcamp | 40 | 6 | 50 |
| Tex Harvey, Midland; Clear Fork | 40 | 10 | 50 |
| Warfield, Midland; Ellenburger | 40 | 1 | 50 |
| Williams, Borden; Ellenburger | 40 | 30 | 50 |
| Wingate, Runnels; Pennsylvanian | 40 | 8 | 50 |
| Winfield, Scurry; Mississippian | 40 | 40 | 50 |
| Unnamed, Ector; Clear Fork | 40 | 520 | 50 |
| Unnamed, Ector; Strawn | 20 | 20 | 50 |
| Unnamed, Runnels; Pennsylvanian | 20 | 10 | 50 |
| Total | 1,990 | | 14,740 |

*New Pays*

| | | | |
|---|---|---|---|
| Abell, Pecos; San Andres and Waddell | 160 | 87 | 800 |
| Beddo, Runnels; Jennings | 80 | 5 | 100 |
| C-Bar, Crane; San Andres | 80 | 29 | 240 |

*New Pays*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Dollar Hide, Andrews; Clear Fork | 80 | 5 | 160 |
| Doss, Gaines; Wolfcamp | 40 | 100 | 50 |
| Doss, Gaines; Canyon | 80 | 105 | 240 |
| Flanagan, Gaines; Devonian | 160 | 38 | 500 |
| Landon, Cochran; Devonian | 80 | 42 | 50 |
| North Goldsmith, Ector; Clear Fork | 80 | 98 | 150 |
| Pecos Valley, Pecos; Ellenburger | 40 | 186 | 50 |
| Sprayberry, Dawson; Permian | 180 | 30 | 500 |
| Susan Peak, Tom Green; Canyon | 80 | 40 | 250 |
| University Waddell Ellenburger, Crane; Devonian | 40 | 262 | 50 |
| Winters, Runnels; Pennsylvanian | 40 | 81 | 50 |
| Total | 1,220 | | 3,190 |

## SOUTHEAST NEW MEXICO

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Bough, Lea; Pennsylvanian | 80 | 18 | 50 |
| Denton, Lea; Devonian | 40 | 90 | 50 |
| House, Lea; Tubb | 40 | 69 | 50 |
| Knowles, Lea; Devonian | 160 | 80 | 500 |
| Unnamed, Lea; Devonian | 80 | 120 | 150 |
| Total | 400 | | 800 |

*New Pays*

| | | | |
|---|---|---|---|
| Bagley, Lea; Pennsylvanian | 40 | 48 | 50 |
| Crossroads, Lea; Mississippian | 40 | 84 | 50 |
| Crossroads, Lea; Pennsylvanian | 40 | 20 | 50 |
| Denton, Lea; Mississippian | 40 | 52 | 50 |
| Langlie-Mattix, Lea; Ellenburger | 40 | 59 | 50 |
| Total | 200 | | 250 |

## NORTH LOUISIANA

*Discoveries*

| Field and parish; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Bossier City, Bossier; Pettit | 80 | 10 | 150 |
| Indian Bluff, LaSalle; Wilcox | 40 | 10 | 50 |
| South Sarepta, Bassier; Cotton Valley | 80 | 52 | 150 |
| Unnamed, Caddo; Rodessa | 40 | 20 | 50 |
| Unnamed, Catahoula; Wilcox | 40 | 2 | 50 |
| Unnamed, Sabine; chalk | 40 | 62 | 50 |
| Total | 320 | | 500 |

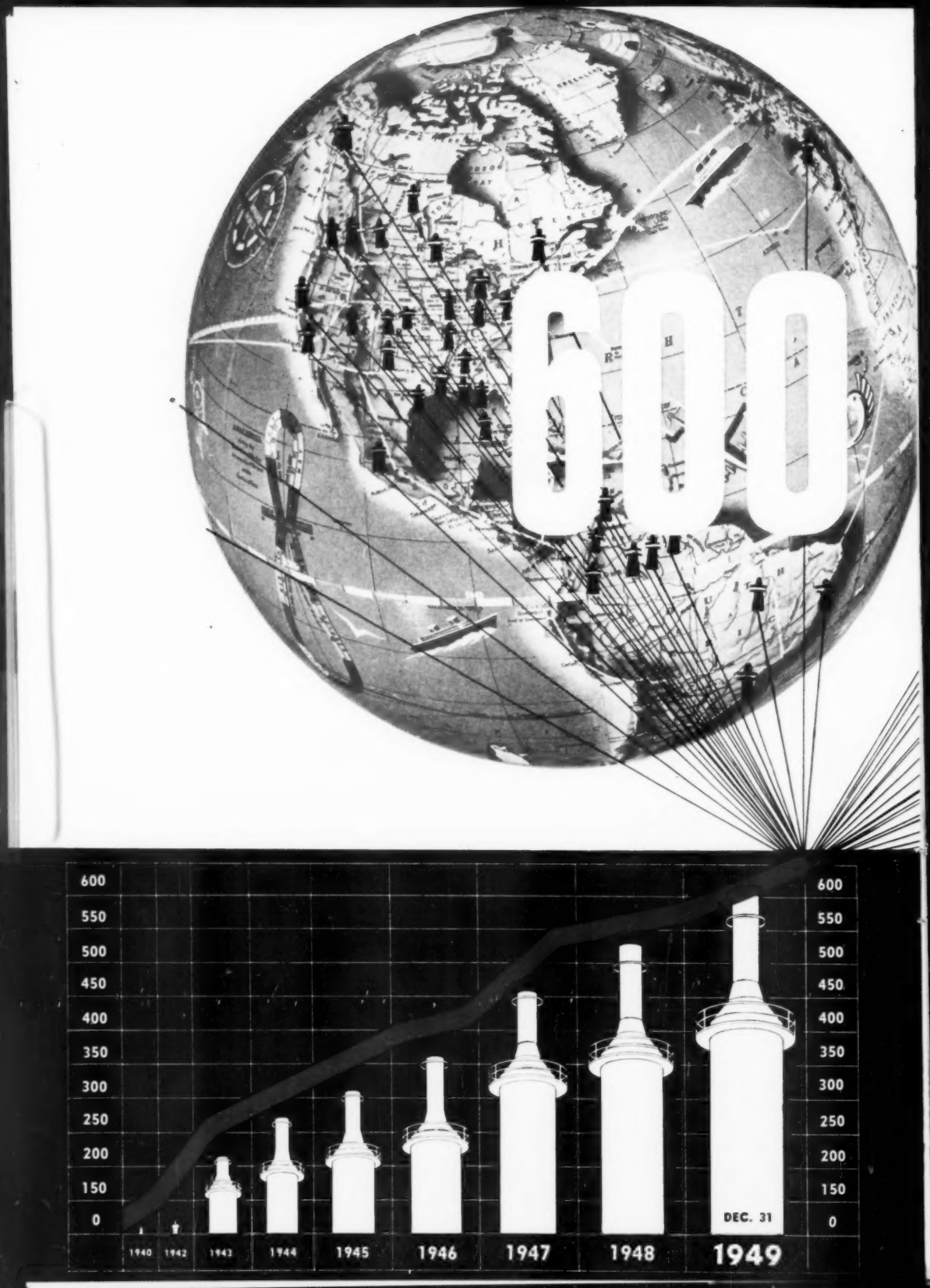
*New Pays*

| | | | |
|---|---|---|---|
| East Haynesville, Claiborne; Cotton Valley | 160 | 20 | 100 |
| East Haynesville, Claiborne; Smackover | 160 | 15 | 100 |
| Rodessa, Caddo; Smackover | 80 | 24 | 150 |
| Sibley, Webster; James | 40 | 9 | 50 |
| Total | 440 | | 400 |

## SOUTH LOUISIANA

*Discoveries*

| Field and parish; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Avondale, Jefferson; 8,813 ft. | 40 | 5 | 50 |
| Bay Marchand, Blk. 2, Lafourche 3,679 ft. | 280 | 19 | 3,500 |
| Bay Marchand, Lafourche, 2,956 ft. | 40 | 8 | 50 |
| Big Island, Rapides; Miocene (Wilcox) | 40 | 2 | 50 |
| Burton, St. James; 10,838 ft. | 160 | 10 | 100 |
| Breton Sound, Blk. 32, Plaquemines; 5,802 ft. | 80 | 2 | 300 |
| Duck Lake, St. Martin; 11,642 ft. | 80 | 10 | 500 |
| Estherwood, Beauregard; 8,320 ft. | 40 | 16 | 50 |
| Fordoche, Pointe Coupee; 8,282 ft. | 200 | 8 | 400 |
| Holly Beach, Cameron; 10,655 ft. | 160 | 5 | 100 |
| Lake Raccourci, Lafourche; 14,434 ft. | 320 | 33 | 500 |
| Lake Raccourci, Lafourche; 9,841 ft. | 40 | 3 | 50 |
| Little Chenier, Cameron; 10,422 ft. | 40 | 6 | 50 |
| Mallard Bay, Cameron; 6,715 ft. | 40 | 29 | 50 |
| Manila Village, Jefferson; 12,980 ft. | 40 | 20 | 50 |
| Midland, Acadia; 10,618 ft. | 160 | 12 | 100 |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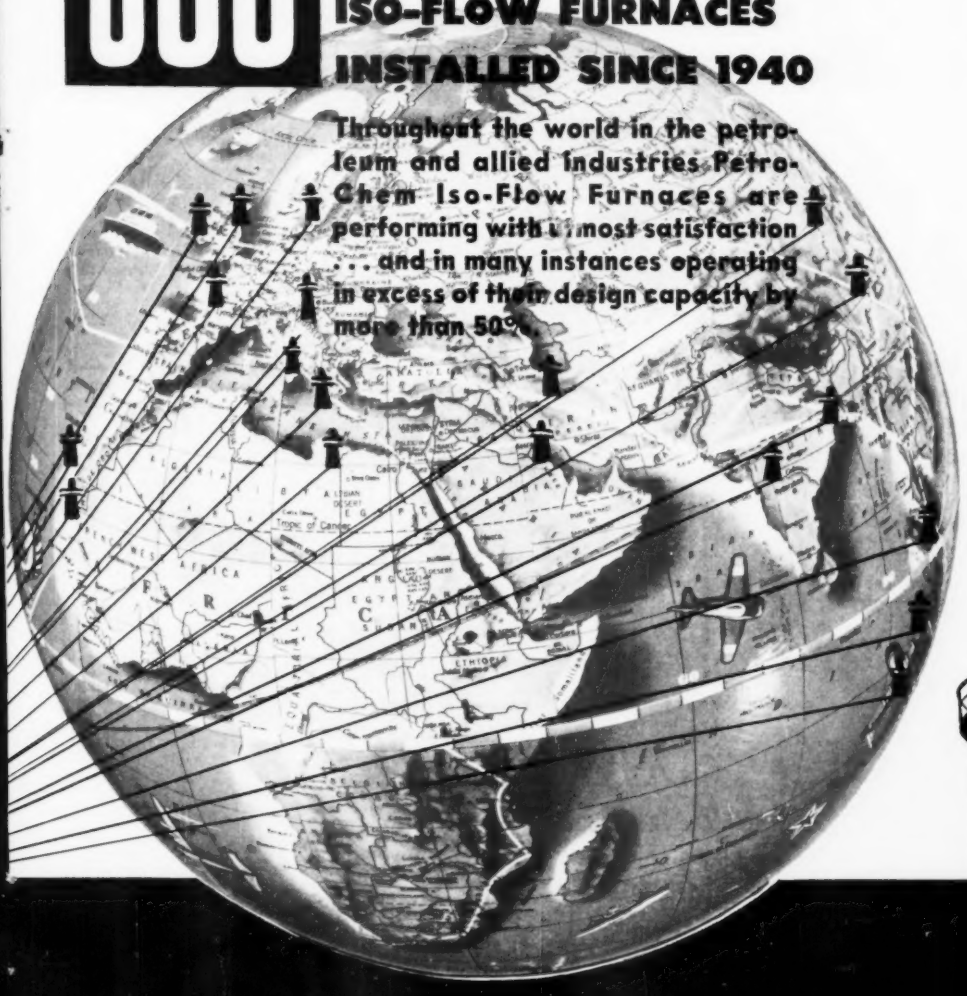
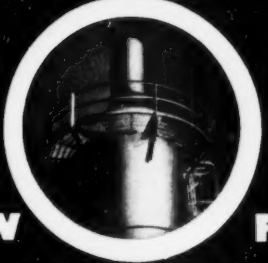


# PETRO-CHEM



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## SOUTH LOUISIANA (Continued)

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Pointe a la Hache, Plaquemines; 10,677 ft. | 440 | 5 | 5,000 |
| Rabbit Island, Iberia; 8,824 ft. | 40 | 26 | 50 |
| Ship Shoal, Blk. 28, offshore, Terrebonne; 8,482 ft. | 160 | 8 | 100 |
| So. Tigre Lagoon, Iberia; 11,400 ft. | 160 | 15 | 100 |
| So. Timbalier area, Terrebonne; 9,550 ft. | 40 | 8 | 50 |
| Springville, Livingston; Catahoula | 40 | 1 | 50 |
| Vermilion area, Blk. 76, Vermilion; 7,415 ft. | 40 | 15 | 50 |
| Vermilion area, Blk. 39, Vermilion; 8,195 ft. | 160 | 20 | 100 |
| West Bivens, Beauregard; 9,340 ft. | 40 | 19 | 50 |
| W. Cameron, Blk. 149, Cameron; 7,150 ft. | 160 | 10 | 50 |
| W. Cameron, Blk. 33, Cameron; 10,390 ft. | 40 | 18 | 50 |
| W. Cameron, Blk. 45, Cameron; 8,738 ft. | 80 | 10 | 500 |
| Unnamed, Acadia; 8,497 ft. | 40 | 6 | 50 |
| Unnamed, Acadia; Miocene | 40 | 5 | 50 |
| Unnamed, Calcasieu; 6,654 ft. | 40 | 10 | 50 |
| Unnamed, Iberville; 10,890 ft. | 160 | 37 | 100 |
| Unnamed, Jefferson; 11,374 | 160 | 13 | 100 |
| Unnamed, Plaquemines; offshore, 9,475 ft. | 160 | 5 | 100 |
| Unnamed, Plaquemines; 10,095 ft. | 160 | 7 | 100 |
| Unnamed, St. Landry; 9,474 ft. | 160 | 8 | 100 |
| Unnamed, Terrebonne; 11,980 ft. | 160 | 8 | 100 |
| Unnamed, Vermilion; 12,098 ft. | 160 | 8 | 100 |
| Total | 4,400 | | 12,900 |

*New Pays*

| | | | |
|---|---|---|---|
| Arnaudville, St. Martin; 11,059 | 160 | 19 | 100 |
| Avondale, Jefferson; 7,750 ft. | 40 | 3 | 50 |
| Bay Junop, Terrebonne; 4,500 ft. | 40 | 4 | 50 |
| Bay Marchand, Lafourche; (offshore) 5,048 ft. | 40 | 44 | 50 |
| Bay Marchand, Lafourche; 3,900 ft. | 40 | 25 | 50 |
| Bay Marchand, Lafourche; 5,050 ft. | 40 | 8 | 50 |
| Blk. 32, Terrebonne; 2,663 ft. | 40 | 15 | 50 |
| Caillou Island, Terrebonne; 9,990 ft. | 280 | 18 | 1,400 |
| Caminada Pass, Jefferson; 6,128 | 40 | 10 | 50 |
| Duck Lake, St. Martin; 11,470 ft. | 120 | 5 | 600 |
| Egan, Acadia; Miocene | 160 | 4 | 800 |
| Four Isle Dome, Terrebonne; 11,140 ft. | 160 | 12 | 800 |
| Four Isle Dome, Terrebonne; 12,430 ft. | 160 | 25 | 100 |
| Fordoche, Pointe Coupee; 8,607 ft. | 200 | 7 | 1,000 |
| Fordoche, Pointe Coupee; 8,197 ft. | 40 | 10 | 50 |
| Fordoche, Pointe Coupee; 8,798 ft. | 40 | 4 | 50 |
| Iowa, Calcasieu; 10,202 ft. | 80 | 5 | 300 |
| Leeville, Lafourche; 13,360 ft. | 160 | | 100 |
| Lottie, Pointe Coupee; 9,130 ft. | 40 | 2 | 50 |
| Perkins, Calcasieu; 6,674 ft. | 80 | 4 | 250 |
| Pointe a la Hache, Plaquemines; 8,838 ft. | 280 | 4 | 5,000 |
| Pointe Au Fer, Terrebonne; 9,862 ft. | 160 | 4 | 100 |
| Ship Shoal, Blk. 32, Terrebonne; 3,168 ft. | 40 | 15 | 100 |
| So. Bayou Mallet, Acadia; 9,177 ft. | 80 | 5 | 300 |
| Weeks Island, Iberia; 13,728 ft. | 40 | 15 | 50 |
| Weeks Island, Iberia; 14,015 ft. | 40 | 10 | 50 |
| Total | 2,600 | | 6,300 |

## ARKANSAS

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Cecil, Franklin; Hale | 40 | 80 | 50 |
| Dykesville, Webster; Pettit | 40 | 44 | 50 |
| Loutre Creek, Union; Smackover | 40 | 3 | 50 |
| Pine Tree, Columbia; Smackover | 80 | 7 | 150 |
| S. Larto Lake, Catahoula; Wilcox | 40 | 5 | 50 |
| Unnamed, Columbia; Smackover | 40 | 5 | 50 |
| Unnamed, Columbia; Smackover | 40 | 8 | 50 |
| Total | 320 | | 450 |

*New Pays*

| | | | |
|---|---|---|---|
| North Stephens, Nevada; James | 160 | 6 | 100 |
| Stephens, Columbia; Travis Peak | 160 | 12 | 100 |
| Stephens, Ouachita; Hogg | 160 | 10 | 100 |
| Total | 480 | | 300 |

## MISSISSIPPI

*Discoveries*

| Field and parish; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Bude, Franklin, lower Tuscaloosa | 160 | 8 | 400 |
| Judge Geo. Armstrong, Adams; Armstrong | 40 | 4 | 50 |
| Paine, Greene; lower Tuscaloosa | 40 | 8 | 50 |
| Possum Corner, Wilkinson; 5,083 ft. | 160 | 6 | 50 |
| Rodney, Jefferson, 9,452 ft. | 160 | 4 | 50 |
| Roxie, Franklin; lower Tuscaloosa and Massive | 80 | 8 | 200 |
| Russum, Jefferson; 9,768 ft. | 40 | 7 | 50 |
| Sherrod, Jones; 5,505 ft. | 160 | 35 | 50 |
| Total | 840 | | 900 |

## FLORIDA

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Unnamed, Collier | 40 | | 100 |

## KANSAS

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Bartholomew, No., Sedgwick; Mississippian | 160 | 27 | 400 |
| Belmont, Rooks; Lansing | 80 | 9 | 150 |
| Berland, No., Rooks; Arbuckle | 480 | 5 | 1,500 |
| Black Cloud, Stafford, Arbuckle | 80 | 20 | 150 |
| Bonaville, McPherson; Simpson | 40 | 13 | 50 |
| Bryant, SE., Barton; Arbuckle | 360 | 6 | 1,700 |
| Burt, Greenwood; Mississippian | 640 | 13 | 1,500 |
| Butwick, Butler; Mississippian | 120 | 15 | 300 |
| Butwick, NE., Butler; Mississippian | 120 | 36 | 300 |
| Chrisler, Ellis; Lansing | 80 | 12 | 150 |
| Davis Ranch, Wabaunsee; Viola | 480 | 5 | 1,500 |
| Dreiling, Ellis; Arbuckle | 320 | 16 | 1,000 |
| Eagle Creek, Rooks; Arbuckle | 120 | 9 | 250 |
| Ely, Russell; Heebner | 640 | 6 | 600 |
| Engelland, Rice; conglomerate | 80 | 14 | 150 |
| Eulert, Russell; Arbuckle | 640 | 6 | 2,000 |
| Foster, Russell; Lansing | 120 | 12 | 250 |
| Gates, So., Stafford; Arbuckle | 160 | 8 | 400 |
| Grow, Stafford; Arbuckle | 80 | 7 | 150 |
| Hammer, No., Barton; Arbuckle | 960 | 18 | 2,500 |
| Hart, Stafford; Arbuckle | 160 | 2 | 400 |
| Hayden, Rooks; Arbuckle | 640 | 4 | 1,800 |
| Hazlett, No., Butler; Mississippian | 480 | 10 | 1,000 |
| Hildebrand, So., Stafford; Viola | 120 | 20 | 250 |
| Homer, Russell; Tarkio | 40 | 39 | 50 |
| Homer, SE., Russell; Tarkio | 40 | 24 | 50 |
| Huffstutter, Phillips; Lansing-Kansas City | 640 | 36 | 1,500 |
| Larned, Pawnee; Arbuckle | 40 | 1 | 50 |
| Locust Grove, Rooks; Arbuckle | 40 | 10 | 50 |
| McCauley, Barton; Arbuckle | 160 | 3 | 400 |
| McHale, So., Rooks; Arbuckle | 40 | 4 | 50 |
| Meadowside, Barton; Arbuckle | 200 | 14 | 500 |
| Meistrell, Ellis; Arbuckle | 120 | 4 | 250 |
| Merle, Stafford; Lansing | 640 | 8 | 1,500 |
| Merten, SE., Barton, Arbuckle | 40 | 2 | 150 |
| Moon, Stafford; Lansing | 40 | 8 | 50 |
| Moore, Pratt; Simpson | 40 | 22 | 50 |
| Morlan, Graham; Arbuckle | 340 | 6 | 1,000 |
| Mueller, W., Stafford; Arbuckle | 80 | 11 | 250 |
| Muilenburg, Graham; Arbuckle | 320 | 2 | 1,000 |
| Palacky, Ellsworth; Arbuckle | 120 | 4 | 350 |
| Parker, Russell; Arbuckle | 760 | 10 | 2,000 |
| Parker, NW., Russell; Lansing | 120 | 16 | 300 |
| Parsley, Butler; Mississippian | 60 | 9 | 200 |
| Piester, Russell; Lansing | 200 | 8 | 450 |
| Prairie Home, Stafford; Arbuckle | 160 | 14 | 500 |
| Proffitt, Rice; Arbuckle | 160 | 5 | 350 |
| Rhodes, Barber; Mississippian | 160 | 5 | 300 |
| Ringwald, Rice; Lansing | 640 | 5 | 1,000 |
| Rolling Green, E., Barton; Arbuckle | 80 | 39 | 150 |
| Russell, E., Russell; Arbuckle | 640 | 4 | 1,000 |
| Silver Bell, Stafford; Arbuckle | 80 | 12 | 150 |
| Stayton, Cowley, Bartlesville | 40 | 19 | 50 |
| Sunny Valley, Barton; Lansing | 720 | 4 | 1,800 |
| Teall, Graham; Kansas City | 40 | 6 | 50 |
| Trapp, E., Russell; Arbuckle | 80 | 3 | 150 |
| Wakeeney, E., Trego; Kansas City | 40 | 2 | 50 |
| Whitewater, Butler; Viola | 640 | 10 | 1,000 |
| Workman, SE., Barton; Arbuckle | 1,040 | 23 | 2,000 |

## KANSAS (Continued)

### Discoveries

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Yohe, Rooks; Lansing | 160 | 24 | 300 |
| Unnamed, Barton; Arbuckle | 40 | 24 | 50 |
| Unnamed, Barton; Lansing | 640 | 9 | 600 |
| Unnamed, Barton; Arbuckle | 40 | 17 | 50 |
| Unnamed, Butler; Mississippian | 40 | 7 | 50 |
| Unnamed, Butler; Mississippian | 80 | 17 | 200 |
| Unnamed, Ellis; Lansing | 160 | 27 | 200 |
| Unnamed, Ellis; Arbuckle | 640 | 3 | 800 |
| Unnamed, Ellis; Arbuckle | 40 | 6 | 50 |
| Unnamed, Harper; Mississippian | 40 | 14 | 50 |
| Unnamed, Marion; Mississippian | 40 | 6 | 50 |
| Unnamed, Morris; Mississippian | 40 | 45 | 50 |
| Unnamed, Rice; Lansing | 80 | 4 | 150 |
| Unnamed, Stafford; Mississippian | 40 | 1 | 50 |
| Unnamed, Stafford; Arbuckle | 40 | 7 | 50 |
| Unnamed, Sumner; Simpson sand | 40 | 8 | 50 |
| Unnamed, Woodson; Lansing | 40 | 15 | 50 |
| Total | 17,960 | | 40,000 |

## MICHIGAN

### Discoveries

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Adams, S., Bay; Richfield | 160 | 4 | 320 |
| Alamo, Kalamazoo; Traverse | 80 | 3 | 100 |
| Bard, Gladwin; Dundee | 400 | 7 | 800 |
| Billings, Gladwin; Dundee | 400 | 6 | 800 |
| Butman, Gladwin; Dundee | 160 | 8 | 320 |
| Butman, Gladwin; Richfield | 40 | 4 | 50 |
| Crooked Lake, Allegan; Traverse | 160 | 5 | 320 |
| Elmwood, Tuscola; Traverse | 80 | 7 | 100 |
| Freeport, Barry; Traverse | 320 | 3 | 640 |
| Lee, S., Allegan; Traverse | 160 | 6 | 320 |
| Martin, Allegan; Traverse | 120 | 7 | 240 |
| Mears, Oceana; Dundee | 320 | 6 | 640 |
| Paris, Mecosta; Traverse | 160 | 4 | 320 |
| Pullman, Allegan; Traverse | 400 | 2 | 800 |
| Trent, Muskegon; Traverse | 280 | 5 | 560 |
| Unnamed, Allegan; Traverse | 40 | 5 | 50 |
| Unnamed, Allegan; Traverse | 40 | 3 | 50 |
| Unnamed, Allegan; Traverse | 40 | 7 | 50 |
| Unnamed, Allegan; Traverse | 40 | 7 | 50 |
| Unnamed, Bay; Traverse | 40 | 6 | 50 |
| Unnamed, Kalamazoo; Traverse | 40 | 4 | 50 |
| Unnamed, Newaygo; Berea | 40 | 2 | 50 |
| Unnamed, Oceana; Traverse | 40 | 4 | 50 |
| Total | 3,560 | | 6,730 |

## CALIFORNIA

### Discoveries

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Arroyo Grande, San Luis Obispo; Miocene | 60 | 27 | 140 |
| Cat Canyon East, Santa Barbara; Miocene, Monterey | 40 | 273 | 90 |
| Chino Hills, San Bernardino; Miocene | 40 | 20 | 30 |
| Cymric, Kern; Pliocene, Phacoides | 70 | 51 | 150 |
| Devils Den, Kern; Miocene | 65 | 832 | 200 |
| Edison, Kern; Miocene, Temblor | 150 | 50 | 340 |
| Edison, Kern; Chanac, Santa Margarita | 100 | 135 | 250 |
| Four Deer, Santa Barbara; Miocene, chert | 40 | 100 | 80 |
| Greeley, Kern; Miocene, Stevens | 270 | 20 | 600 |
| Monroe Swell, Monterey; Santa Margarita | 100 | 30 | 200 |
| Puente-Walnut, Los Angeles; Pliocene, Repetto | 50 | 40 | 45 |
| San Ardo, Monterey; Miocene, Campbell | 350 | 30 | 950 |
| San Ardo, Monterey; Miocene, Campbell | 200 | 24 | 600 |
| San Ardo, Monterey; Miocene, Campbell | 110 | 30 | 320 |
| San Joaquin, Fresno; Eocene, Tejon | 100 | 27 | 300 |
| South Belridge, Kern; Pliocene, Etchegoin | 70 | 103 | 80 |
| South Cuyama, Santa Barbara; Miocene, Dibblee | 3,000 | 340 | 140,000 |
| Tejon Hills, Kern; Miocene, Santa Margarita | 120 | 20 | 200 |

### Discoveries

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Tejon Hills, Kern; Miocene, Santa Margarita | 100 | 20 | 180 |
| West Mountain, Ventura; Sespe | 50 | 500 | 110 |
| Total | 5,185 | | 144,865 |

### New Pays

| | | | |
|---|---|---|---|
| Devils Den, Kern; Eocene, Kreyenhagen | 35 | 80 | 160 |
| Guijarral Hills, Fresno; Miocene, Allison | 450 | 40 | 1,000 |
| McVan, Kern; upper Vedder | 200 | 24 | 400 |
| Ojai, Ventura; Sespe | 60 | 20 | 80 |
| Placerita, Los Angeles; Saugus-Pico | 60 | 50 | 120 |
| Placerita, Los Angeles; Pliocene (?) Juanita | 80 | 240 | 8,000 |
| Russell Ranch, San Luis Obispo; Miocene, Colgrove | 200 | 160 | 12,000 |
| Russell Ranch, Santa Barbara; Miocene, Dibblee | 640 | 370 | 45,000 |
| Tejon, Kern; Reserve | 400 | 49 | 1,000 |
| Wasco, Kern; Eocene | 90 | 280 | 400 |
| Total | 2,215 | | 68,160 |

## MONTANA

### Discoveries

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Clark Fork, Carbon; (condensate), Dakota | 160 | 12 | 200 |
| Devil's Pocket, Musselshell; Heath | 40 | 40 | 50 |
| Jack Creek, Carbon; Dakota | 120 | 4 | 400 |
| Sumatra, Rosebud; Amsden | 40 | 85 | 50 |
| Total | 360 | | 700 |

### New Pays

| | | | |
|---|---|---|---|
| Bowes, Blaine; Ellis | 40 | 32 | 50 |
| Total | 40 | | 50 |

## WYOMING

### Discoveries

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Borie, Laramie; Muddy | 40 | 87 | 50 |
| Frisby, So., Washakie; Phosphoria | 40 | 90 | 50 |
| Hay Creek, Weston; Newcastle | 360 | 39 | 1,080 |
| Lake Creek, Hot Springs; Tensleep | 40 | 53 | 50 |
| Lightning Creek, Niobrara; basal Sundance | 40 | 20 | 50 |
| Little Sand Draw, Hot Springs; Tensleep | 160 | 64 | 1,000 |
| Lodgepole, Weston; Dakota | 40 | 44 | 50 |
| Murphy Dome, Hot Springs; Tensleep | 40 | 66 | 50 |
| Riverton, Fremont; Tensleep | 40 | 219 | 50 |
| Sage Spring Creek, Natrona; Dakota | 40 | 19 | 50 |
| Skull Creek, SE., Weston; Newcastle | 80 | (?) | 150 |
| Sussex, Johnson; Lakota | 360 | 27 | 2,000 |
| Total | 1,280 | | 4,630 |

### New Pays

| | | | |
|---|---|---|---|
| Beaver Creek, Fremont; Tensleep | 40 | 461 | 50 |
| Enos Creek, Hot Springs; Tensleep | 40 | 23 | 50 |
| Golden Eagle, Hot Springs; Tensleep | 40 | 106 | 50 |
| Hamilton Dome, Hot Springs; Madison | 120 | 401 | 600 |
| Hatfield Dome, Carbon; Nugget | 40 | 100 | 50 |
| Little Buck Creek, Niobrara; first Leo | 80 | 28 | 300 |
| Little Sand Draw, Hot Springs; Embar | 80 | 76 | 300 |
| Pilot Butte, Fremont; Muddy | 120 | 67 | 350 |
| Total | 560 | | 1,750 |

## COLORADO

### Discoveries

| | | | |
|---|---|---|---|
| Oak Creek, Routt; Morrison | 40 | 442 | 50 |
| Total | 40 | | 50 |

## OKLAHOMA

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Apperson, SW., Osage; Layton | 80 | 14 | 100 |
| Atwood, N., Hughes; Booch | 120 | 19 | 200 |
| Bebee, SE., Pontotoc; Viola | 360 | 7 | 1,250 |
| Benjamin, Hughes; Cromwell | 280 | 9 | 1,000 |
| Blakely, SE., Okfuskee; Wilcox | 160 | 8 | 350 |
| Bradley, E., McClain; first Bromide | 80 | 495 | 320 |
| Chandler, E., Lincoln; Prue | 80 | 8 | 100 |
| Coon Creek, So., Oklahoma; second Wilcox | 80 | 8 | 300 |
| Happy Valley, Lincoln; Bartlesville | 1,020 | 16 | 3,000 |
| Hewitt, NW., Carter; Tussy | 120 | 40 | 500 |
| Lewis, NW., Garvin; first Bromide | 120 | 5 | 500 |
| Lexington, NE., Cleveland; sand | 80 | 15 | 100 |
| Lindsay, SE., Garvin; Gibson | 120 | 18 | 500 |
| Lovell, N., Logan; Tonkawa | 160 | 10 | 300 |
| Marlow, SE., Stephens; Pennsylvanian | 320 | 8 | 300 |
| Morse, NE., Okfuskee; Gilcrease | 80 | 12 | 100 |
| Marvin, W.; Pottawatomie; Hunton | 120 | 10 | 200 |
| Mt. Hope, NW., Payne; Red Fork | 280 | 13 | 600 |
| Palacine, S., Stephens; sand | 720 | 8 | 1,500 |
| Panther Creek, S., Garvin; Hartshorne | 480 | 24 | 900 |
| Paoli, SW., Garvin; sand | 80 | 8 | 150 |
| Pecan Grove, Hughes; Cromwell | 240 | 15 | 250 |
| Prague, W., Lincoln; Wilcox | 40 | 10 | 100 |
| Prairie View, Payne; Skinner | 80 | 9 | 100 |
| Ramsey, NE., Payne; Skinner | 240 | 10 | 500 |
| Red Hill, Pottawatomie; unconformity | 40 | 29 | 50 |
| Remington, Osage, Mississippian | 200 | 4 | 500 |
| Renfrow, E., Grant; Wilcox | 320 | 5 | 500 |
| Rich Valley, Grant; Wilcox | 160 | 35 | 500 |
| Richards, SW., Comanche; sand | 80 | 22 | 100 |
| Ringwood, W., Major; Manning | 120 | 11 | 500 |
| Roady, NE., Garvin; second Deese | 120 | 57 | 500 |
| Robberson, SE., Garvin; sand | 200 | 69 | 600 |
| Rosenwald, Okfuskee; Cromwell | 160 | 5 | 300 |
| Sholem Alechem, W., Stephens; Hoxbar | 320 | 32 | 1,000 |
| Sylvian, E., Seminole; Union Valley | 200 | 12 | 400 |
| Transco, E., Seminole; lower Calvin | 120 | 10 | 200 |
| Tryon, NW., Lincoln; Red Fork | 120 | 13 | 200 |
| Union Point, Pottawatomie; Wilcox | 180 | 12 | 500 |
| Valley Grove, NE., Okfuskee; Dutcher | 80 | 40 | 150 |
| Wanette, E., Pottawatomie; Layton | 160 | 18 | 350 |
| Welty, SW., Okfuskee; Union Valley-Cromwell | 80 | (?) | 100 |
| Yale, SW., Payne; Peru | 180 | 11 | 600 |
| Unnamed, Carter; sand | 80 | 36 | 100 |
| Unnamed, Comanche; sand | 80 | 10 | 100 |
| Unnamed, Cotton; sand | 80 | 6 | 100 |
| Unnamed, Garvin; first Bromide | 120 | 26 | 500 |
| Unnamed, Hughes; Booch | 80 | 38 | 100 |
| Unnamed, Kiowa; sandy lime | 120 | 13 | 150 |
| Unnamed, Lincoln; Prue | 80 | 78 | 100 |
| Unnamed, Major; Manning | 120 | 94 | 350 |
| Unnamed, Osage; Mississippi chat | 80 | 47 | 100 |
| Unnamed, Stephens; Bromide and Tulip Creek | 120 | 351 | 500 |
| Miscellaneous discoveries | 2,320 | | 2,000 |
| Total | 11,570 | | 24,370 |

## ILLINOIS

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Beaver Creek, N., Bond; Benoist | 80 | 6 | 200 |
| Bogota, N., Jasper; McClosky | 40 | 9 | 50 |
| Cantrell, Hamilton; Aux Vases | 40 | 15 | 50 |
| Dead River, White; Cypress | 180 | 11 | 1,000 |
| Dudley, Edgar; Pennsylvanian | 680 | 39 | 1,500 |
| Edinburg, Christian; Devonian | 40 | 3 | 50 |
| Elbridge, Edgar; McClosky | 360 | 4 | 750 |
| Ina, N., Jefferson; McClosky | 40 | 4 | 50 |
| Inman, Central, Gallatin; Tar Springs | 280 | 12 | 600 |
| Keyesport, Clinton; Bethel | 320 | 10 | 700 |
| Merriam, Wayne; McClosky | 60 | 9 | 120 |
| Mitchell, Edwards; McClosky | 40 | 5 | 50 |
| Raccoon Lake, Marion; Rosiclare and McClosky | 480 | 15 | 1,200 |
| Roby, Sangamon, Silurian | 40 | 6 | 50 |
| Rural Hill, N., Hamilton; Rosiclare | 40 | 8 | 50 |
| Ste. Marie, E., Jasper; Rosiclare | 160 | 5 | 300 |
| Ste. Marie, W., Jasper; McClosky | 200 | 2 | 250 |
| Sparta, S., Randolph; Cypress | 40 | 15 | 50 |
| Taylor Hill, Franklin; lower O'Hara | 120 | 6 | 250 |

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Thompsonville, E., Franklin; Aux Vases | 120 | 10 | 250 |
| Weaver, Clark; Devonian | 200 | 24 | 400 |
| Westfield, N. Coles; Pennsylvanian | 120 | 16 | 250 |
| Williams, Jefferson; Aux Vases | 400 | 12 | 1,000 |
| Zenith, S., Wayne; McClosky | 680 | 13 | 1,500 |
| Unnamed, Morgan; Silurian | 40 | 18 | 50 |
| Total | 4,800 | | 11,120 |

## INDIANA

*Discoveries*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Arda, Pike; McClosky | 20 | 5 | 50 |
| Armstrong, Vanderburgh; O'Hara | 10 | 6 | 20 |
| Blackhawk, Vigo; Devonian | 90 | 32 | 250 |
| Carlisle, Sullivan; McClosky | 10 | 8 | 20 |
| Crunk, S., Posey; Hardinsburg | 20 | 8 | 50 |
| Cypress Pond, Knox; lower O'Hara | 10 | 3 | 20 |
| Fort Branch, Gibson; Tar Springs | 10 | 9 | 20 |
| King, Gibson; Bethel | 10 | 20 | 20 |
| Kolb, Gibson; McClosky | 30 | 4 | 80 |
| Patoka, E., Gibson; Cypress | 40 | 14 | 100 |
| Paxton, Sullivan; McClosky | 10 | 7 | 20 |
| Pelzer, Warrick; Cypress | 20 | 5 | 50 |
| Piroque, Posey; McClosky | 40 | 39 | 100 |
| St. James, Gibson; McClosky | 10 | 5 | 20 |
| St. Wendell, E., Posey; Cypress | 80 | 10 | 300 |
| Stooker, E., Posey; McClosky | 10 | 4 | 20 |
| Sweezer, Spencer; Waltersburg | 10 | 9 | 20 |
| Terre Haute, S., Vigo; Devonian | 70 | 5 | 200 |
| Wheatonville, Gibson; McClosky | 10 | 6 | 50 |
| York Ferry, Sullivan; Pennsylvanian | 30 | 16 | 80 |
| Unnamed, Wabash; Trenton | 10 | 79 | 10 |
| Total | 540 | | 1,500 |

*New Pays*

| | | | |
|---|---|---|---|
| Bristow, Perry; Jackson | 10 | 14 | 20 |
| Carlisle, Sullivan; Salem | 10 | 7 | 20 |
| College, Posey; Palestine | 10 | 10 | 20 |
| Cypress Pond, Knox; Bethel | 20 | 7 | 50 |
| Fort Branch, Gibson; Jackson | 10 | 17 | 20 |
| Harmony Gas, Sullivan; Pennsylvanian | 10 | 7 | 20 |
| Heusler, Posey; Jackson | 20 | 8 | 50 |
| King, Gibson; Aux Vases | 10 | 8 | 20 |
| Oaktown, Knox; Salem | 10 | 24 | 20 |
| Stooker, Posey; Pennsylvanian | 10 | 13 | 20 |
| Terre Haute, South, Vigo; Carper | 30 | 61 | 80 |
| Vaughn, Vanderburgh; McClosky | 10 | 9 | 20 |
| Total | 160 | | 360 |

## WESTERN KENTUCKY

*New Pools*

| Field and county; producing formation— | Acreage proven (ac.) | Formation thickness (ft.) | Estimated reserves (thou. bbl.) |
|---|---|---|---|
| Caney Mound, East, Union; lower O'Hara | 110 | 11 | 330 |
| Curdsville, W., Henderson; Bethel | 10 | 8 | 20 |
| Diamond Island, Henderson; Rosiclare | 20 | 7 | 50 |
| Reed, E., Henderson; Waltersburg | 40 | 4 | 120 |
| Ridge, Posey; O'Hara and McClosky | 10 | 5 | 20 |
| Rogers Landing, Henderson; Cypress | 10 | 10 | 20 |
| Wabash Island, Union; Cypress | 20 | 26 | 50 |
| Utley, North, Union; Cypress, O'Hara, McClosky | 20 | 10 | 50 |
| Waitman, Daviess; McClosky | 170 | 3 | 600 |
| Total | 410 | | 1,260 |

*New Pays*

| | | | |
|---|---|---|---|
| Caney Mound, East, Union; McClosky | 10 | 4 | 20 |
| Glenville, McLean; McClosky | 100 | 3 | 350 |
| Griffith, Daviess; McClosky | 10 | 4 | 20 |
| Morganfield, Union; McClosky | 20 | 7 | 50 |
| Morganfield, S., Union; Cypress | 30 | 26 | 90 |
| Rogers Landing, Henderson; Tar Springs | 10 | 11 | 20 |
| Wabash Island, Union; Biehl | 10 | 4 | 20 |
| Total | 190 | | 570 |

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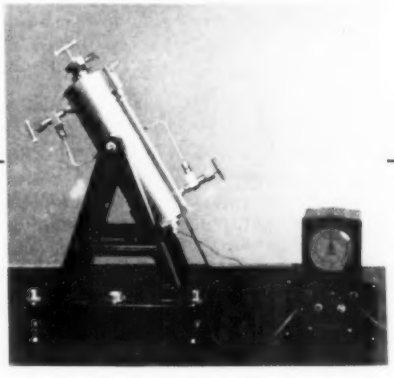

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# Exploratory and Development Drilling —Where It Occurred and the Results

### SOUTHWEST TEXAS
(District 1)
Total Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 43 | 24 | 0 | 19 | 103,820 |
| February | 35 | 11 | 0 | 24 | 107,468 |
| March | 68 | 26 | 0 | 42 | 193,494 |
| April | 42 | 18 | 0 | 24 | 129,584 |
| May | 46 | 29 | 0 | 17 | 138,917 |
| June | 59 | 24 | 1 | 34 | 180,482 |
| July | 35 | 18 | 1 | 16 | 113,664 |
| August | 36 | 17 | 0 | 19 | 111,894 |
| September | 56 | 24 | 0 | 32 | 182,630 |
| October | 32 | 10 | 1 | 21 | 122,384 |
| November | 34 | 12 | 1 | 21 | 83,478 |
| December | 62 | 32 | 0 | 30 | 161,175 |
| Total | 548 | 245 | 4 | *299 | 1,628,990 |

*Incl. 1 service well.

### SOUTHWEST TEXAS
(District 1)
Wildcat Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 14 | 3 | 0 | 11 | 36,085 |
| February | 17 | 0 | 0 | 17 | 48,599 |
| March | 41 | 4 | 0 | 37 | 106,619 |
| April | 15 | 1 | 0 | 14 | 46,329 |
| May | 15 | 1 | 0 | 14 | 26,566 |
| June | 28 | 2 | 1 | 25 | 73,075 |
| July | 13 | 0 | 0 | 13 | 28,108 |
| August | 16 | 0 | 0 | 16 | 49,234 |
| September | 27 | 5 | 0 | 22 | 78,340 |
| October | 14 | 0 | 0 | 14 | 48,984 |
| November | 17 | 0 | 0 | 17 | 40,343 |
| December | 23 | 1 | 0 | 22 | 63,482 |
| Total | 240 | 17 | 1 | 222 | 645,764 |

### SOUTHWEST TEXAS
(District 1)
Development Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 29 | 21 | 0 | 8 | 67,735 |
| February | 18 | 11 | 0 | 7 | 58,869 |
| March | 27 | 22 | 0 | 5 | 86,875 |
| April | 27 | 17 | 0 | 10 | 83,255 |
| May | 31 | 28 | 0 | 3 | 112,351 |
| June | 31 | 22 | 0 | 9 | 107,407 |
| July | 22 | 18 | 1 | 3 | 85,556 |
| August | 20 | 17 | 0 | 3 | 62,660 |
| September | 29 | 19 | 0 | 10 | 104,290 |
| October | 18 | 10 | 1 | 7 | 73,400 |
| November | 17 | 12 | 1 | 4 | 43,135 |
| December | 39 | 31 | 0 | 8 | 97,693 |
| Total | 308 | 228 | 3 | 77 | 983,226 |

### SOUTHWEST TEXAS
(District 1)
Wildcat Completions by Counties

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Atascosa | 14 | 0 | 0 | 14 | 55,766 |
| Bastrop | 16 | 1 | 0 | 15 | 37,221 |
| Bandera | 1 | 0 | 0 | 1 | 645 |
| Bexar | 11 | 0 | 0 | 11 | 24,166 |
| Caldwell | 28 | 5 | 0 | 23 | 59,292 |
| Dimmit | 4 | 1 | 0 | 3 | 15,046 |
| Edwards | 7 | 0 | 0 | 7 | 12,555 |
| Frio | 21 | 4 | 1 | 16 | 105,962 |
| Gillespie | 3 | 0 | 0 | 3 | 2,332 |
| Guadalupe | 20 | 3 | 0 | 17 | 37,256 |
| Kerr | 1 | 0 | 0 | 1 | 3,503 |
| Kinney | 1 | 0 | 0 | 1 | 4,750 |
| LaSalle | 10 | 0 | 0 | 10 | 50,912 |
| McMullen | 21 | 1 | 0 | 20 | 66,837 |
| Maverick | 1 | 0 | 0 | 1 | 2,510 |
| Medina | 6 | 0 | 0 | 6 | 16,580 |
| Milam | 15 | 0 | 0 | 15 | 47,394 |
| Travis | 22 | 1 | 0 | 21 | 26,946 |
| Uvalde | 4 | 0 | 0 | 4 | 11,782 |
| Val Verde | 4 | 0 | 0 | 4 | 6,921 |
| Williamson | 26 | 1 | 0 | 25 | 35,612 |
| Zavala | 4 | 0 | 0 | 4 | 21,776 |
| Total | 240 | 17 | 1 | 222 | 645,764 |

### SOUTHWEST TEXAS
(District 1)
Development Completions by Fields

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Big Foot | 7 | 5 | 0 | 2 | 23,254 |
| Byersville | 4 | 0 | 0 | 4 | 6,502 |
| Charlotte | 71 | 69 | 1 | 1 | 370,510 |
| Doering Ranch | 3 | 0 | 1 | 2 | 19,657 |
| Elm Creek | 27 | 23 | 0 | 4 | 21,033 |
| Gas Ridge | 31 | 30 | 0 | 1 | 15,470 |
| Green Franklin | 3 | 1 | 0 | 2 | 15,527 |
| Holman | 5 | 2 | 0 | 3 | 3,035 |
| Jayeddie | 4 | 3 | 0 | 1 | 8,415 |
| Joliet | 7 | 3 | 0 | 4 | 15,801 |
| Jourdanton | 8 | 7 | 0 | 1 | 59,227 |
| Luling | 17 | 15 | 0 | 2 | 37,492 |
| Luling-Branyon | 13 | 9 | 0 | 4 | 28,977 |
| Pearsall | 21 | 21 | 0 | 0 | 118,412 |
| Salt Flats | 3 | 3 | 0 | 0 | 8,066 |
| San Miguel | 3 | 1 | 0 | 2 | 16,596 |
| Seguin | 3 | 0 | 0 | 3 | 4,352 |
| Tracy | 3 | 3 | 0 | 0 | 957 |
| Walnut Creek | 5 | 0 | 0 | 5 | 7,880 |
| Wardlaw | 5 | 1 | 0 | 4 | 1,557 |
| Weigang | 15 | 12 | 0 | 3 | 57,836 |
| West Byersville | 3 | 2 | 0 | 1 | 4,070 |
| West Charlotte | 5 | 4 | 0 | 1 | 27,979 |
| Wolf Creek | 4 | 2 | 0 | 2 | 9,007 |
| Miscellaneous | 38 | 12 | 1 | 25 | 101,614 |
| Total | 308 | 228 | 3 | 77 | 983,226 |

### TEXAS GULF COAST
(District 2)
Total Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 63 | 29 | 17 | 17 | 413,558 |
| February | 43 | 23 | 4 | 16 | 262,260 |
| March | 58 | 26 | 10 | 22 | 341,056 |
| April | 67 | 36 | 7 | 24 | 401,658 |
| May | 60 | 33 | 12 | 15 | 370,590 |
| June | 72 | 41 | 9 | 22 | 418,284 |
| July | 50 | 22 | 4 | 24 | 286,731 |
| August | 44 | 22 | 6 | 16 | 260,225 |
| September | 52 | 26 | 5 | 21 | 301,389 |
| October | 52 | 23 | 8 | 21 | 307,701 |
| November | 38 | 15 | 10 | 13 | 219,648 |
| December | 75 | 37 | 18 | 20 | 444,199 |
| Total | 674 | 333 | 110 | 231 | 4,027,299 |

### TEXAS GULF COAST
(District 2)
Wildcat Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 26 | 4 | 6 | 16 | 174,582 |
| February | 12 | 1 | 0 | 11 | 69,370 |
| March | 22 | 2 | 4 | 16 | 122,165 |
| April | 22 | 6 | 1 | 15 | 149,491 |
| May | 19 | 3 | 3 | 13 | 129,839 |
| June | 19 | 2 | 4 | 13 | 117,259 |
| July | 18 | 2 | 2 | 14 | 112,879 |
| August | 15 | 1 | 1 | 13 | 90,246 |
| September | 19 | 2 | 2 | 15 | 95,659 |
| October | 15 | 1 | 0 | 14 | 79,431 |
| November | 14 | 3 | 4 | 7 | 76,730 |
| December | 16 | 4 | 2 | 10 | 103,359 |
| Total | 217 | 31 | 29 | 157 | 1,321,010 |

### TEXAS GULF COAST
(District 2)
Development Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 37 | 25 | 11 | 1 | 238,976 |
| February | 31 | 22 | 4 | 5 | 192,890 |
| March | 36 | 24 | 6 | 6 | 218,891 |
| April | 45 | 30 | 6 | 9 | 252,167 |
| May | 41 | 30 | 9 | 2 | 240,751 |
| June | 53 | 39 | 5 | 9 | 301,025 |
| July | 32 | 20 | 2 | 10 | 173,852 |
| August | 29 | 21 | 5 | 3 | 169,979 |
| September | 33 | 24 | 3 | 6 | 205,730 |
| October | 37 | 22 | 8 | 7 | 228,270 |
| November | 24 | 12 | 6 | 6 | 142,918 |
| December | 59 | 33 | 16 | 10 | 340,840 |
| Total | 457 | 302 | 81 | 74 | 2,706,289 |

### TEXAS GULF COAST
(District 2)
Wildcat Completions by Counties

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Bee | 27 | 4 | 5 | 18 | 144,024 |
| Calhoun | 25 | 3 | 3 | 19 | 199,643 |
| DeWitt | 5 | 0 | 0 | 5 | 41,805 |
| Goliad | 25 | 8 | 5 | 12 | 161,540 |
| Gonzales | 5 | 0 | 0 | 5 | 23,146 |
| Jackson | 28 | 2 | 1 | 25 | 175,716 |
| Karnes | 9 | 0 | 0 | 9 | 49,765 |
| Lavaca | 14 | 1 | 5 | 8 | 85,348 |
| Live Oak | 20 | 6 | 5 | 9 | 114,726 |
| Refugio | 17 | 0 | 3 | 14 | 109,452 |
| Victoria | 33 | 6 | 2 | 25 | 187,001 |
| Wilson | 9 | 1 | 0 | 8 | 28,844 |
| Total | 217 | 31 | 29 | 157 | 1,321,010 |

### TEXAS GULF COAST
(District 2)
Development Completions by Fields

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Anaqua | 10 | 5 | 0 | 5 | 34,266 |
| Bloomington | 15 | 14 | 1 | 0 | 72,231 |
| Bonnie View | 4 | 3 | 0 | 1 | 17,901 |
| Brandt | 3 | 2 | 0 | 1 | 20,801 |
| Burnell (Wilcox) | 11 | 10 | 1 | 0 | 75,978 |
| Cabeza Creek | 3 | 3 | 0 | 0 | 25,103 |
| Coletto Creek | 15 | 8 | 6 | 1 | 65,384 |
| Coy City | 3 | 1 | 1 | 1 | 23,633 |
| E. Fannin | 3 | 0 | 0 | 3 | 13,094 |
| E. Long Mott | 26 | 24 | 1 | 1 | 194,130 |
| E. Placedo | 3 | 1 | 0 | 2 | 19,901 |
| E. Sheriff | 3 | 1 | 1 | 1 | 28,544 |
| Fagan | 3 | 0 | 3 | 0 | 8,130 |
| Gottschalt | 16 | 14 | 2 | 0 | 123,286 |
| Greta | 6 | 3 | 3 | 0 | 21,869 |
| Holzmark | 4 | 3 | 0 | 1 | 18,829 |
| Hord's Creek | 6 | 2 | 2 | 2 | 32,974 |
| Lolita | 3 | 3 | 0 | 0 | 23,532 |
| Matagorda Bay | 15 | 9 | 6 | 0 | 76,133 |
| N. Marcado Creek | 4 | 0 | 3 | 1 | 20,970 |
| Placedo | 13 | 9 | 4 | 0 | 69,046 |
| Pridham Lake | 4 | 3 | 0 | 1 | 19,436 |
| Provident City | 7 | 4 | 2 | 1 | 59,596 |
| Refugio-New | 3 | 2 | 0 | 1 | 16,574 |
| Refugio-Fox | 10 | 3 | 3 | 4 | 53,077 |
| Refugio-Heard | 7 | 4 | 0 | 3 | 42,199 |
| Roche | 15 | 10 | 0 | 5 | 105,673 |
| Rudman | 4 | 2 | 1 | 1 | 29,825 |
| S. Burnell | 3 | 0 | 1 | 2 | 6,096 |
| Speaks | 7 | 0 | 5 | 2 | 31,979 |
| Tom O'Connor | 46 | 36 | 8 | 2 | 247,223 |
| Victoria | 5 | 4 | 1 | 0 | 25,074 |
| Vienna | 4 | 1 | 1 | 2 | 34,261 |
| W. Cosden | 6 | 5 | 0 | 1 | 43,127 |

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| W. Pridham Lake | 4 | 2 | 2 | 0 | 20,017 |
| W. Ranch | 60 | 60 | 0 | 0 | 364,179 |
| Word | 5 | 2 | 0 | 3 | 35,847 |
| Youngeen | 10 | 9 | 0 | 1 | 38,094 |
| Yoward | 7 | 6 | 0 | 1 | 53,662 |
| Miscellaneous | 81 | 34 | 23 | 24 | 494,615 |
| Total | 457 | 302 | 81 | 74 | 2,706,289 |

### TEXAS GULF COAST
(District 3)
Total Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 101 | 58 | 1 | 42 | 658,183 |
| February | 72 | 48 | 2 | 22 | 462,310 |
| March | 115 | 61 | 4 | 50 | 730,805 |
| April | 94 | 62 | 8 | 24 | 627,430 |
| May | 91 | 50 | 10 | 31 | 590,877 |
| June | 143 | 81 | 9 | 53 | 837,239 |
| July | 92 | 54 | 2 | 36 | 516,801 |
| August | 128 | 62 | 17 | 49 | 736,408 |
| September | 119 | 75 | 5 | 39 | 666,624 |
| October | 97 | 59 | 5 | 33 | 570,424 |
| November | 107 | 70 | 6 | 31 | 588,073 |
| December | 147 | 90 | 3 | 54 | 867,458 |
| Total | 1,306 | 770 | 72 | 464 | 7,852,632 |

### TEXAS GULF COAST
(District 3)
Wildcat Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 26 | 3 | 1 | 22 | 184,040 |
| February | 19 | 7 | 1 | 11 | 157,657 |
| March | 32 | 6 | 1 | 25 | 220,275 |
| April | 19 | 8 | 2 | 9 | 145,903 |
| May | 27 | 8 | 3 | 16 | 236,733 |
| June | 40 | 15 | 1 | 24 | 305,975 |
| July | 19 | 6 | 0 | 13 | 137,850 |
| August | 35 | 8 | 5 | 22 | 250,269 |
| September | 23 | 5 | 2 | 16 | 185,719 |
| October | 22 | 3 | 1 | 18 | 141,694 |
| November | 14 | 3 | 0 | 11 | 115,650 |
| December | 38 | 6 | 0 | 32 | 290,183 |
| Total | 314 | 78 | 17 | 219 | 2,371,948 |

### TEXAS GULF COAST
(District 3)
Development Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 75 | 55 | 0 | 20 | 474,143 |
| February | 53 | 41 | 1 | 11 | 304,653 |
| March | 83 | 55 | 3 | 25 | 510,530 |
| April | 75 | 54 | 6 | 15 | 481,527 |
| May | 64 | 42 | 7 | 15 | 354,144 |
| June | 103 | 66 | 8 | 29 | 531,264 |
| July | 73 | 48 | 2 | 23 | 378,951 |
| August | 93 | 54 | 12 | 27 | 486,139 |
| September | 96 | 70 | 3 | 23 | 480,905 |
| October | 75 | 56 | 4 | 15 | 428,730 |
| November | 93 | 67 | 6 | 20 | 472,423 |
| December | 109 | 84 | 3 | 22 | 577,275 |
| Total | 992 | 692 | 55 | 245 | 5,480,684 |

### TEXAS GULF COAST
(District 3)
Wildcat Completions by Counties

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Austin | 7 | 3 | 0 | 4 | 71,942 |
| Brazoria | 45 | 9 | 2 | 34 | 362,479 |
| Brazos | 2 | 0 | 0 | 2 | 8,002 |
| Burleson | 1 | 0 | 0 | 1 | 4,818 |
| Chambers | 16 | 1 | 1 | 14 | 142,481 |
| Colorado | 4 | 1 | 0 | 3 | 28,215 |
| Fayette | 4 | 0 | 0 | 4 | 20,953 |
| Fort Bend | 13 | 3 | 0 | 10 | 80,677 |
| Galveston | 11 | 5 | 0 | 6 | 104,832 |
| Grimes | 6 | 1 | 0 | 5 | 40,089 |
| Hardin | 12 | 4 | 0 | 8 | 88,716 |
| Harris | 21 | 6 | 0 | 15 | 147,516 |
| Jasper | 4 | 1 | 0 | 3 | 30,997 |
| Jefferson | 22 | 3 | 2 | 17 | 188,330 |
| Liberty | 23 | 13 | 0 | 10 | 159,101 |
| Matagorda | 21 | 2 | 2 | 17 | 176,927 |
| Montgomery | 16 | 2 | 1 | 13 | 118,114 |
| Newton | 6 | 3 | 0 | 3 | 54,633 |
| Orange | 4 | 1 | 0 | 3 | 30,238 |
| Polk | 9 | 6 | 0 | 3 | 56,102 |
| San Jacinto | 14 | 3 | 3 | 8 | 98,406 |
| Tyler | 6 | 5 | 0 | 1 | 49,872 |
| Waller | 7 | 1 | 0 | 6 | 59,486 |
| Washington | 2 | 0 | 0 | 2 | 5,658 |
| Wharton | 38 | 5 | 6 | 27 | 243,359 |
| Total | 314 | 78 | 17 | 219 | 2,371,948 |

### TEXAS GULF COAST
(District 3)
Development Completions by Fields

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Arnim | 4 | 4 | 0 | 0 | 8,162 |
| Barbers Hill | 7 | 6 | 0 | 1 | 39,198 |
| Batson (Old) | 10 | 9 | 1 | 0 | 15,973 |
| Big Creek | 6 | 4 | 0 | 2 | 28,710 |
| Blue Ridge | 8 | 3 | 0 | 5 | 48,560 |
| Boling | 26 | 16 | 0 | 10 | 83,726 |
| Bryan Mound | 5 | 2 | 0 | 3 | 14,205 |
| Buna | 3 | 0 | 0 | 3 | 24,199 |
| Cedar Point | 6 | 0 | 2 | 4 | 36,143 |
| Chesterville | 5 | 1 | 3 | 1 | 48,779 |
| Chocolate Bayou | 21 | 17 | 2 | 2 | 220,913 |
| Clay Creek | 4 | 3 | 0 | 1 | 5,867 |
| Cold Spring | 4 | 3 | 0 | 1 | 18,682 |
| Copeland Creek | 10 | 6 | 0 | 4 | 56,790 |
| Damon Mound | 3 | 1 | 0 | 2 | 10,729 |
| Danbury | 9 | 1 | 1 | 7 | 65,221 |
| Dyersdale | 31 | 19 | 4 | 8 | 112,642 |
| E. Bay City | 3 | 2 | 0 | 1 | 31,305 |
| E. Hillister | 3 | 1 | 0 | 2 | 22,389 |
| E. Village Mills | 19 | 18 | 0 | 1 | 138,030 |
| Esperson | 5 | 3 | 1 | 1 | 44,816 |
| Fannett | 6 | 4 | 0 | 2 | 32,493 |
| Fishers Reef | 3 | 2 | 0 | 1 | 24,705 |
| Gilbert Ranch | 3 | 0 | 1 | 2 | 29,166 |
| Gillock | 4 | 4 | 0 | 0 | 37,735 |
| Gist | 5 | 5 | 0 | 0 | 36,297 |
| Goose Creek | 65 | 59 | 1 | 5 | 295,620 |
| Hankamer | 10 | 8 | 0 | 2 | 55,991 |
| Hartburg | 4 | 2 | 0 | 2 | 31,489 |
| Hastings | 4 | 3 | 0 | 1 | 25,104 |
| High Island | 23 | 22 | 0 | 1 | 173,695 |
| Hillebrandt Bayou | 3 | 1 | 0 | 2 | 24,750 |
| Hockley | 5 | 5 | 0 | 0 | 14,734 |
| Hull | 26 | 21 | 0 | 5 | 122,994 |
| Humble | 73 | 41 | 1 | 31 | 196,665 |
| Hutchins-Kubela | 14 | 7 | 4 | 3 | 65,382 |
| Jergins | 4 | 3 | 0 | 1 | 25,865 |
| Kuhlmann | 8 | 8 | 0 | 0 | 47,659 |
| Lane City Townsite | 15 | 12 | 0 | 3 | 82,052 |
| McCoy | 3 | 3 | 0 | 0 | 27,450 |
| Mach | 6 | 3 | 1 | 2 | 40,041 |
| Manvel | 7 | 5 | 0 | 2 | 34,344 |
| Markham | 9 | 4 | 0 | 5 | 24,749 |
| Midfields | 8 | 7 | 1 | 0 | 73,413 |
| Morgan Creek | 11 | 9 | 0 | 2 | 40,199 |
| Nash | 3 | 1 | 1 | 1 | 13,729 |
| N. Bay City | 4 | 4 | 0 | 0 | 35,878 |
| N. Cleveland | 7 | 5 | 0 | 2 | 41,883 |
| N. Dayton | 3 | 2 | 0 | 1 | 9,192 |
| N. Durkee | 3 | 0 | 0 | 3 | 21,845 |
| N. Port Neches | 27 | 19 | 6 | 2 | 235,674 |
| N. Winnie | 5 | 4 | 1 | 0 | 49,551 |
| Old Ocean | 16 | 14 | 1 | 1 | 175,051 |
| Orange | 3 | 2 | 0 | 1 | 15,602 |
| Pickett Ridge | 3 | 2 | 0 | 1 | 14,576 |
| Pierce Junction | 31 | 24 | 1 | 6 | 198,974 |
| Prasifka | 8 | 7 | 0 | 1 | 44,481 |
| Racoon Bend | 7 | 6 | 0 | 1 | 44,530 |
| San Jacinto | 3 | 3 | 0 | 0 | 25,491 |
| Saratoga | 26 | 19 | 1 | 6 | 72,824 |
| Sheridan | 6 | 5 | 0 | 1 | 58,726 |
| Silsbee | 8 | 8 | 0 | 0 | 59,005 |
| Sour Lake | 97 | 76 | 0 | 21 | 268,843 |
| S. Dayton | 7 | 3 | 0 | 4 | 30,113 |
| S. Esperson | 4 | 2 | 0 | 2 | 26,832 |
| S. Gillock | 17 | 17 | 0 | 0 | 155,923 |
| S. Liberty | 40 | 25 | 0 | 15 | 224,404 |
| S. Mayes | 3 | 2 | 0 | 1 | 31,351 |
| Spanish Camp | 9 | 0 | 7 | 2 | 28,611 |
| Spindletop | 10 | 9 | 0 | 1 | 16,607 |
| Stratton Ridge | 6 | 2 | 0 | 4 | 29,003 |
| Sugar Valley | 13 | 13 | 0 | 0 | 124,313 |
| West Orange | 6 | 6 | 0 | 0 | 25,522 |
| W. Columbia | 10 | 6 | 0 | 4 | 46,917 |
| W. Louise | 4 | 3 | 0 | 1 | 20,017 |
| Miscellaneous | 92 | 46 | 14 | 32 | 697,585 |
| Total | 992 | 692 | 55 | 245 | 5,480,684 |

### SOUTHWEST TEXAS
(District 4)
Total Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 126 | 71 | 4 | 51 | 660,805 |
| February | 99 | 58 | 5 | 36 | 505,791 |
| March | 155 | 77 | 16 | 62 | 778,188 |
| April | 131 | 62 | 21 | 48 | 711,383 |
| May | 84 | 41 | 4 | 39 | 404,964 |
| June | 127 | 58 | 12 | 57 | 625,941 |
| July | 111 | 48 | 16 | 47 | 540,213 |
| August | 85 | 29 | 13 | 43 | 418,651 |
| September | 104 | 58 | 6 | 40 | 565,503 |
| October | 85 | 52 | 5 | 28 | 425,972 |
| November | 93 | 47 | 12 | 34 | 468,723 |
| December | 119 | 62 | 10 | 47 | 610,692 |
| Total | 1,319 | 663 | 124 | *532 | 6,716,826 |

Incl. 1 service well.

### SOUTHWEST TEXAS
(District 4)
Wildcat Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 31 | 3 | 1 | 27 | 159,620 |
| February | 29 | 6 | 1 | 22 | 151,263 |
| March | 51 | 3 | 5 | 43 | 250,811 |
| April | 46 | 7 | 5 | 34 | 244,680 |
| May | 28 | 7 | 0 | 21 | 130,662 |
| June | 39 | 6 | 2 | 31 | 167,288 |
| July | 38 | 5 | 8 | 25 | 187,865 |
| August | 31 | 3 | 4 | 24 | 157,333 |
| September | 32 | 2 | 3 | 27 | 205,348 |
| October | 20 | 2 | 1 | 17 | 88,875 |
| November | 26 | 5 | 2 | 19 | 137,949 |
| December | 34 | 8 | 1 | 25 | 167,644 |
| Total | 405 | 57 | 33 | 315 | 2,049,338 |

### SOUTHWEST TEXAS
(District 4)
Development Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 95 | 68 | 3 | 24 | 501,185 |
| February | 70 | 52 | 4 | 14 | 354,528 |
| March | 104 | 74 | 11 | 19 | 527,377 |
| April | 85 | 55 | 16 | 14 | 466,703 |
| May | 56 | 34 | 4 | 18 | 274,302 |
| June | 88 | 52 | 10 | 26 | 438,653 |
| July | 73 | 43 | 8 | 22 | 352,348 |
| August | 54 | 26 | 9 | 19 | 261,318 |
| September | 72 | 56 | 3 | 13 | 360,155 |
| October | 65 | 50 | 4 | 11 | 337,097 |
| November | 67 | 42 | 10 | 15 | 330,774 |
| December | 85 | 54 | 9 | 22 | 443,048 |
| Total | 914 | 606 | 91 | 217 | 4,667,488 |

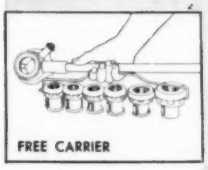
### SOUTHWEST TEXAS
(District 4)
Wildcat Completions by Counties

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Aransas | 8 | 3 | 0 | 5 | 70,153 |
| Brooks | 21 | 7 | 2 | 12 | 152,997 |
| Cameron | 5 | 1 | 0 | 4 | 47,776 |
| Duval | 95 | 11 | 10 | 74 | 392,248 |
| Hidalgo | 18 | 5 | 7 | 6 | 158,987 |
| Jim Hogg | 41 | 0 | 1 | 40 | 135,930 |
| Jim Wells | 12 | 2 | 1 | 9 | 69,557 |
| Kenedy | 8 | 3 | 0 | 5 | 82,685 |
| Kleberg | 6 | 1 | 1 | 4 | 59,340 |
| Nueces | 27 | 11 | 1 | 15 | 209,771 |
| San Patricio | 28 | 2 | 4 | 22 | 189,654 |
| Starr | 41 | 10 | 5 | 26 | 186,301 |
| Webb | 64 | 0 | 0 | 64 | 200,258 |
| Willacy | 3 | 1 | 0 | 2 | 23,857 |
| Zapata | 28 | 0 | 1 | 27 | 69,824 |
| Total | 405 | 57 | 33 | 315 | 2,049,338 |

### SOUTHWEST TEXAS
(District 4)
Development Completions by Fields

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Agua Dulce | 14 | 5 | 8 | 1 | 93,450 |
| Agua Prieta | 5 | 1 | 0 | 4 | 24,407 |
| Arrowhead | 3 | 1 | 0 | 2 | 18,049 |
| Aviator | 7 | 3 | 0 | 4 | 12,435 |
| Bailey | 9 | 4 | 1 | 4 | 55,875 |
| Baldwin | 3 | 3 | 0 | 0 | 11,802 |
| Ben Bolt | 4 | 3 | 0 | 1 | 22,068 |
| Bishop | 4 | 3 | 0 | 1 | 30,691 |
| Borosa | 8 | 6 | 0 | 2 | 40,797 |
| Borregas | 13 | 9 | 0 | 4 | 101,985 |
| Brayton | 6 | 6 | 0 | 0 | 43,974 |
| Buena Vista | 3 | 2 | 0 | 1 | 5,537 |
| Coastal | 5 | 3 | 0 | 2 | 20,336 |
| Conoco-Driscoll | 8 | 4 | 0 | 4 | 23,350 |
| Diego | 3 | 0 | 0 | 3 | 17,177 |
| Dinn (S. Kohler) | 12 | 9 | 0 | 3 | 29,549 |
| D.C.R.—79 | 10 | 8 | 0 | 2 | 15,196 |
| E. Charco Redondo | 4 | 1 | 0 | 3 | 6,670 |
| E. Flour Bluff | 4 | 1 | 1 | 2 | 27,283 |
| E. Peters | 4 | 1 | 2 | 1 | 10,204 |
| E. Plymouth | 8 | 6 | 0 | 2 | 42,255 |
| E. Premont | 3 | 3 | 0 | 0 | 14,503 |
| E. Realitos | 6 | 5 | 0 | 1 | 25,643 |
| E. Taft | 6 | 5 | 0 | 1 | 33,855 |
| E. White Point | 9 | 8 | 0 | 1 | 52,189 |
| Escobas | 12 | 3 | 1 | 8 | 16,519 |
| Fulton Beach | 29 | 28 | 1 | 0 | 211,082 |

Beaver



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## No. 3 Ratchet Threader For Pipe, Bolts, Conduit

**Beaver No. 3 Ratchet Threader** is a deluxe tool with fully-enclosed ratchet teeth that cannot get gummed-up or mutilated—thus eliminating the danger of serious accidents caused by ratchet slippage.

Die segments square in shape—no weak sections—are easily removable for sharpening and can be inverted for close threading. Ample openings between segments for oiling and chip clearance.

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BEAVER PIPE TOOLS

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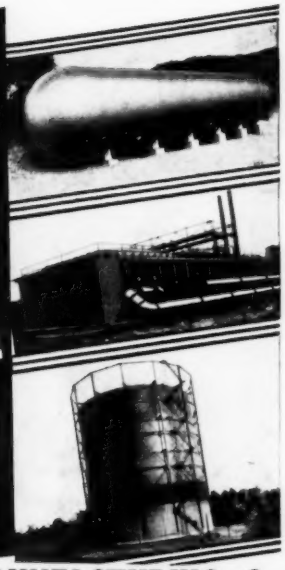
Experienced Handling
of your needs for
GAS STORAGE
and
PROCESSING EQUIPMENT



The STACEY MANUFACTURING Co.
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Many unique built-in features insure adequate *safety factors*, assure *low maintenance*, and allow *ease of installation*.

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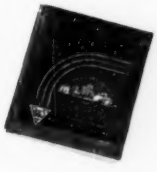

69

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SALES OFFICES IN PRINCIPAL CITIES

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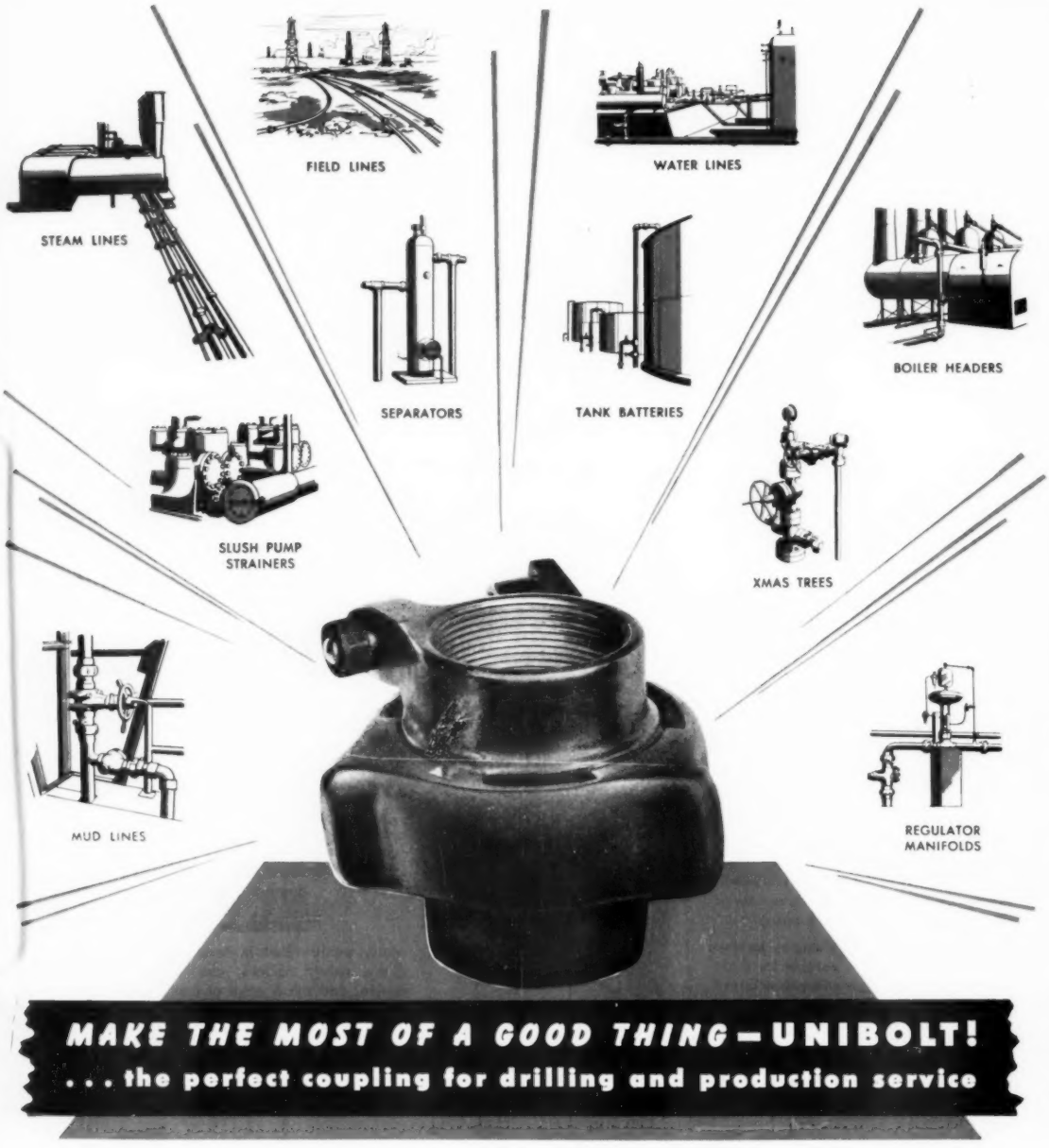


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## . . . the perfect coupling for drilling and production service

There is no limit to the uses for UNIBOLT Couplings in drilling and production service. Any line — steam lines, water lines, mud lines, oil and gas lines — can be coupled tighter, with a stronger joint, and dismantled and re-assembled in fast time with UNIBOLT Couplings. Three types of seats: a metal ring gasket type for high pressure service, a renewable resilient type for saturated steam and low pressure oil, gas, or water lines, and a tongue and groove type which conforms to ASA-600 Series specifications for welding neck couplings. Hubs are provisioned for threaded, socket weld, or butt weld connections. The pressure range is up to 15,000 lbs. test.

So, you name the coupling job and UNIBOLT will furnish the coupling designed expressly for that job. Make the most of a good thing . . . UNIBOLT.

**THORNHILL-CRAVER CO.**

HOUSTON, UNIBOLT TEXAS

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Garcia | 12 | 9 | 0 | 3 | 50,197 |
| Gyp Hill | 3 | 1 | 1 | 1 | 21,958 |
| Hoffman | 20 | 14 | 3 | 3 | 48,221 |
| Hughes | 3 | 1 | 0 | 2 | 6,981 |
| Jay Simmons | 13 | 12 | 0 | 1 | 84,294 |
| Joe Moss | 4 | 4 | 0 | 0 | 3,031 |
| Kelsey | 7 | 4 | 1 | 2 | 47,921 |
| Kelsey Deep | 6 | 5 | 1 | 0 | 39,752 |
| Labbe | 3 | 1 | 2 | 0 | 8,354 |
| La Copita | 10 | 4 | 3 | 3 | 69,293 |
| La Gloria | 62 | 56 | 4 | 2 | 444,579 |
| Lamar | 4 | 3 | 1 | 0 | 28,870 |
| La Reforma | 15 | 7 | 4 | 4 | 96,242 |
| London Gin | 18 | 18 | 0 | 0 | 81,579 |
| Mercedes | 3 | 0 | 1 | 2 | 22,625 |
| Midway (Holst) | 21 | 15 | 2 | 4 | 124,258 |
| N. Albercas | 9 | 7 | 0 | 2 | 21,497 |
| N. Aviator | 11 | 7 | 0 | 4 | 19,512 |
| N. Chiltipin | 3 | 3 | 0 | 0 | 12,610 |
| N. Fitzsimmons | 3 | 3 | 0 | 0 | 13,469 |
| N. Government Wells | 14 | 9 | 3 | 2 | 36,010 |
| N. Magnolia City | 4 | 1 | 0 | 3 | 22,288 |
| N. Minnie Bock | 9 | 4 | 1 | 4 | 62,802 |
| N. Rincon | 5 | 5 | 0 | 0 | 23,844 |
| N. Sinton-Shallow | 13 | 10 | 1 | 2 | 32,858 |
| N. Sun | 3 | 0 | 1 | 2 | 21,222 |
| Orange Grove | 3 | 2 | 0 | 1 | 15,800 |
| Palo Blanco | 4 | 1 | 0 | 3 | 15,006 |
| Pantex | 9 | 7 | 0 | 2 | 27,713 |
| Payne | 4 | 2 | 0 | 2 | 31,300 |
| Poquita Creek | 11 | 8 | 0 | 3 | 28,912 |
| Premont | 13 | 12 | 0 | 1 | 47,278 |
| Quien Sabe | 27 | 22 | 2 | 3 | 65,918 |
| Rincon | 13 | 7 | 1 | 5 | 62,659 |
| Riverside | 3 | 0 | 2 | 1 | 22,139 |
| Round Lake | 4 | 2 | 0 | 2 | 21,815 |
| Salt Lake | 4 | 3 | 1 | 0 | 30,704 |
| San Pablo | 8 | 6 | 0 | 2 | 30,880 |
| Sarita | 3 | 3 | 0 | 0 | 27,351 |
| Saxet | 11 | 8 | 1 | 2 | 63,579 |
| Saxet Deep | 3 | 2 | 0 | 1 | 25,110 |
| Seeligson | 65 | 52 | 10 | 3 | 416,052 |
| Semmes | 3 | 0 | 0 | 3 | 7,504 |
| Seven Sisters | 5 | 3 | 0 | 2 | 13,001 |
| S. Armstrong | 11 | 10 | 0 | 1 | 35,400 |
| S. Haldeman | 3 | 3 | 0 | 0 | 17,155 |
| S. Kelsey | 15 | 13 | 0 | 2 | 100,121 |
| Squire | 3 | 3 | 0 | 0 | 10,513 |
| Stratton | 16 | 13 | 0 | 3 | 110,534 |
| Sun | 9 | 8 | 0 | 1 | 46,355 |
| Tarancahuas | 9 | 8 | 0 | 1 | 20,037 |
| Tijerina-Canales-Blucher | 12 | 7 | 4 | 1 | 92,847 |
| W. Charamousca | 3 | 0 | 1 | 2 | 9,319 |
| W. Corpus | 3 | 1 | 0 | 2 | 28,904 |
| W. Sinton | 16 | 13 | 2 | 1 | 67,798 |
| W. Sinton-Shallow | 12 | 7 | 1 | 4 | 29,639 |
| Willamar | 13 | 10 | 0 | 3 | 104,214 |
| Willmann | 7 | 5 | 1 | 1 | 33,216 |
| Miscellaneous | 109 | 31 | 22 | 56 | 557,567 |
| Total | 914 | 606 | 91 | 217 | 4,667,488 |

**EAST TEXAS**
**(Districts 5, 6, and 6-P)**
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 106 | 84 | 3 | 19 | 437,514 |
| February | 64 | 47 | 3 | 14 | 298,410 |
| March | 119 | 86 | 11 | 22 | 592,596 |
| April | 87 | 56 | 5 | 26 | 388,871 |
| May | 109 | 75 | 6 | 28 | 473,814 |
| June | 107 | 82 | 3 | 22 | 460,753 |
| July | 87 | 68 | 4 | 15 | 380,422 |
| August | 84 | 55 | 3 | 26 | 369,302 |
| September | 97 | 62 | 5 | 30 | 425,013 |
| October | 77 | 59 | 2 | 16 | 371,759 |
| November | 75 | 44 | 3 | 28 | 337,303 |
| December | 102 | 74 | 2 | 26 | 455,971 |
| Total | 1,114 | 792 | 50 | 272 | 4,991,728 |

**EAST TEXAS**
**(Districts 5, 6, and 6-P)**
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 11 | 0 | 0 | 11 | 47,092 |
| February | 9 | 1 | 1 | 7 | 38,632 |
| March | 12 | 1 | 1 | 10 | 88,748 |
| April | 16 | 0 | 0 | 16 | 67,585 |
| May | 9 | 0 | 1 | 18 | 94,907 |
| June | 15 | 3 | 0 | 12 | 64,958 |
| July | 11 | 3 | 0 | 8 | 56,829 |
| August | 14 | 1 | 0 | 13 | 60,238 |
| September | 24 | 3 | 0 | 21 | 123,710 |
| October | 15 | 3 | 0 | 12 | 91,299 |
| November | 18 | 0 | 0 | 18 | 77,180 |
| December | 22 | 2 | 1 | 19 | 106,855 |
| Total | 186 | 17 | 4 | 165 | 918,033 |

**EAST TEXAS**
**(Districts 5, 6, and 6-P)**
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 95 | 84 | 3 | 8 | 390,422 |
| February | 55 | 46 | 2 | 7 | 259,778 |
| March | 107 | 85 | 10 | 12 | 503,848 |
| April | 71 | 56 | 5 | 10 | 321,286 |
| May | 90 | 75 | 5 | 10 | 378,907 |
| June | 92 | 79 | 3 | 10 | 395,795 |
| July | 76 | 65 | 4 | 7 | 323,593 |
| August | 70 | 54 | 3 | 13 | 309,064 |
| September | 73 | 59 | 5 | 9 | 301,303 |
| October | 62 | 56 | 2 | 4 | 280,460 |
| November | 57 | 44 | 3 | 10 | 260,123 |
| December | 80 | 72 | 1 | 7 | 349,116 |
| Total | 928 | 775 | 46 | 107 | 4,073,695 |

**EAST TEXAS**
**(Districts 5, 6, and 6-P)**
**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Anderson | 6 | 1 | 0 | 5 | 35,382 |
| Bosque | 3 | 0 | 0 | 3 | 14,846 |
| Bowie | 2 | 0 | 0 | 2 | 14,021 |
| Camp | 1 | 0 | 0 | 1 | 13,373 |
| Cass | 1 | 0 | 0 | 1 | 7,671 |
| Cherokee | 11 | 1 | 0 | 10 | 62,802 |
| Collin | 1 | 0 | 0 | 1 | 6,856 |
| Delta | 2 | 0 | 0 | 2 | 11,065 |
| Denton | 13 | 0 | 0 | 13 | 32,446 |
| Falls | 5 | 0 | 0 | 5 | 10,227 |
| Franklin | 4 | 1 | 0 | 3 | 17,711 |
| Freestone | 3 | 0 | 2 | 1 | 29,926 |
| Grayson | 4 | 2 | 0 | 2 | 19,038 |
| Harrison | 2 | 1 | 0 | 1 | 14,724 |
| Henderson | 3 | 0 | 0 | 3 | 10,734 |
| Hill | 2 | 1 | 0 | 1 | 1,432 |
| Hopkins | 5 | 0 | 0 | 5 | 26,224 |
| Houston | 4 | 0 | 0 | 4 | 26,535 |
| Hunt | 8 | 0 | 0 | 8 | 28,831 |
| Kaufman | 8 | 1 | 0 | 7 | 41,845 |
| Leon | 4 | 0 | 0 | 4 | 25,799 |
| Limestone | 6 | 0 | 0 | 6 | 26,753 |
| McLennan | 2 | 0 | 0 | 2 | 1,856 |
| Madison | 3 | 2 | 0 | 1 | 22,909 |
| Marion | 1 | 0 | 0 | 1 | 5,000 |
| Morris | 3 | 0 | 0 | 3 | 13,183 |
| Nacogdoches | 4 | 1 | 0 | 3 | 21,700 |
| Navarro | 13 | 0 | 0 | 13 | 29,705 |
| Panola | 1 | 0 | 1 | 0 | 6,470 |
| Red River | 7 | 0 | 0 | 7 | 21,281 |
| Robertson | 4 | 0 | 0 | 4 | 13,226 |
| Rusk | 1 | 0 | 0 | 1 | 7,192 |
| Sabine | 4 | 0 | 0 | 4 | 28,079 |
| San Augustine | 1 | 0 | 0 | 1 | 3,031 |
| Shelby | 7 | 0 | 1 | 6 | 43,258 |
| Smith | 7 | 2 | 0 | 5 | 59,411 |
| Titus | 3 | 1 | 0 | 2 | 14,068 |
| Trinity | 2 | 0 | 0 | 2 | 21,402 |
| Upshur | 2 | 0 | 0 | 2 | 7,120 |
| Van Zandt | 3 | 0 | 0 | 3 | 17,292 |
| Walker | 6 | 0 | 0 | 6 | 28,188 |
| Wood | 14 | 3 | 0 | 11 | 75,421 |
| Total | 186 | 17 | 4 | 165 | 918,033 |

**EAST TEXAS**
**(Districts 5, 6, and 6-P)**
**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Alba | 13 | 13 | 0 | 0 | 53,602 |
| Bazette | 4 | 1 | 1 | 2 | 12,539 |
| Blackfoot | 5 | 4 | 0 | 1 | 48,442 |
| Bolivar, N&NW | 26 | 22 | 0 | 4 | 47,258 |
| Buffalo | 3 | 1 | 0 | 2 | 17,680 |
| Calvert | 4 | 3 | 0 | 1 | 11,598 |
| Carthage | 32 | 7 | 18 | 7 | 201,635 |
| Cayuga | 8 | 6 | 0 | 2 | 31,115 |
| Coke | 31 | 29 | 0 | 2 | 136,485 |
| Como | 17 | 16 | 0 | 1 | 71,035 |
| Corsicana Shallow | 8 | 6 | 0 | 2 | 10,326 |
| Day | 4 | 0 | 2 | 2 | 9,003 |
| E. Long Lake | 4 | 1 | 0 | 3 | 21,817 |
| E. Texas Field | 447 | 428 | 0 | 19 | 1,635,886 |
| Elkhart | 4 | 1 | 1 | 2 | 22,217 |
| Grapeland | 8 | 7 | 0 | 1 | 47,589 |
| Hawkins | 18 | 12 | 0 | 6 | 88,180 |
| Huxley | 3 | 1 | 0 | 2 | 21,553 |
| Lakeview | 5 | 2 | 0 | 3 | 22,326 |
| Lone Star | 3 | 1 | 0 | 2 | 10,115 |
| Long Lake | 13 | 7 | 3 | 3 | 69,131 |
| Longwood | 3 | 2 | 0 | 1 | 19,677 |
| Merigale-Paul | 31 | 27 | 0 | 4 | 154,663 |
| Mitchell Creek | 4 | 3 | 0 | 1 | 18,305 |
| Nolan Edward | 6 | 3 | 0 | 3 | 28,679 |
| Opelika | 16 | 15 | 0 | 1 | 143,086 |
| Pewitt Ranch | 4 | 3 | 0 | 1 | 19,235 |
| Pickton | 10 | 10 | 0 | 0 | 79,391 |
| Quitman | 19 | 17 | 0 | 2 | 97,497 |
| Rodessa | 7 | 2 | 4 | 1 | 51,277 |
| Sand Flat | 3 | 2 | 0 | 1 | 21,898 |
| Sherman & E. | 20 | 19 | 0 | 1 | 78,239 |
| Talco | 11 | 9 | 0 | 2 | 51,137 |
| Tri-Cities | 6 | 4 | 0 | 2 | 50,206 |
| Tyler & So. | 5 | 4 | 0 | 1 | 42,314 |
| Van Shallow | 3 | 3 | 0 | 0 | 6,828 |
| Walter Fair | 4 | 4 | 0 | 0 | 19,856 |
| Waskom | 19 | 14 | 5 | 0 | 113,437 |
| Weiland | 7 | 2 | 0 | 5 | 20,478 |
| Whelan | 4 | 1 | 2 | 1 | 30,077 |
| Willow Springs | 3 | 0 | 3 | 0 | 20,990 |
| Yantis & E. | 28 | 24 | 2 | 2 | 134,612 |
| Miscellaneous | 55 | 39 | 5 | 11 | 282,301 |
| Total | 928 | 775 | 46 | 107 | 4,073,695 |

**WEST CENTRAL TEXAS**
**(District 7-B)**
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 165 | 77 | 2 | 86 | 500,660 |
| February | 93 | 42 | 2 | 49 | 289,977 |
| March | 198 | 99 | 5 | 94 | 585,475 |
| April | 143 | 69 | 7 | 67 | 455,211 |
| May | 176 | 80 | 3 | 93 | 536,201 |
| June | 193 | 91 | 5 | 97 | 591,189 |
| July | 160 | 80 | 3 | 77 | 450,132 |
| August | 142 | 77 | 2 | 63 | 410,188 |
| September | 183 | 76 | 7 | 100 | 537,673 |
| October | 122 | 65 | 0 | 57 | 370,767 |
| November | 183 | 91 | 3 | 89 | 523,829 |
| December | 155 | 95 | 4 | 56 | 453,452 |
| Total | 1,913 | 942 | 43 | 928 | 5,704,754 |

**WEST CENTRAL TEXAS**
**(District 7-B)**
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 58 | 12 | 0 | 46 | 192,283 |
| February | 37 | 5 | 1 | 31 | 130,588 |
| March | 54 | 16 | 1 | 37 | 181,777 |
| April | 49 | 7 | 4 | 38 | 180,883 |
| May | 57 | 4 | 1 | 52 | 194,266 |
| June | 53 | 5 | 0 | 48 | 176,218 |
| July | 47 | 9 | 2 | 36 | 146,336 |
| August | 49 | 14 | 0 | 35 | 177,813 |
| September | 66 | 6 | 3 | 57 | 209,544 |
| October | 35 | 5 | 0 | 30 | 123,309 |
| November | 42 | 4 | 0 | 38 | 127,710 |
| December | 45 | 6 | 3 | 36 | 150,341 |
| Total | 592 | 93 | 15 | 484 | 1,991,068 |

**WEST CENTRAL TEXAS**
**(District 7-B)**
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 107 | 65 | 2 | 40 | 308,377 |
| February | 56 | 37 | 1 | 18 | 159,389 |
| March | 144 | 83 | 4 | 57 | 403,698 |
| April | 94 | 62 | 3 | 29 | 274,328 |
| May | 119 | 76 | 2 | 41 | 341,935 |
| June | 140 | 86 | 5 | 49 | 414,971 |
| July | 113 | 71 | 1 | 41 | 303,796 |
| August | 93 | 63 | 2 | 28 | 232,375 |
| September | 117 | 70 | 4 | 43 | 328,129 |
| October | 87 | 60 | 0 | 27 | 247,458 |
| November | 141 | 87 | 3 | 51 | 396,119 |
| December | 110 | 89 | 1 | 20 | 303,111 |
| Total | 1,321 | 849 | 28 | 444 | 3,713,686 |

**WEST CENTRAL TEXAS**
**(District 7-B)**
**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Bosque | 3 | 0 | 0 | 3 | 19,768 |
| Brown | 37 | 1 | 1 | 35 | 62,549 |
| Callahan | 33 | 3 | 1 | 29 | 75,646 |
| Coleman | 49 | 10 | 2 | 37 | 129,914 |
| Comanche | 29 | 1 | 1 | 27 | 80,144 |
| Coryell | 2 | 0 | 0 | 2 | 5,503 |
| Eastland | 41 | 8 | 2 | 31 | 118,346 |
| Erath | 10 | 1 | 1 | 8 | 41,145 |
| Fisher | 25 | 5 | 0 | 20 | 129,355 |
| Hamilton | 6 | 0 | 0 | 6 | 24,011 |
| Haskell | 28 | 7 | 0 | 21 | 137,440 |

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Jones | 89 | 8 | 1 | 80 | 300,783 |
| Lampasas | 5 | 0 | 0 | 5 | 4,467 |
| McCulloch | 1 | 0 | 0 | 1 | 3,101 |
| Mills | 3 | 0 | 0 | 3 | 9,596 |
| Nolan | 13 | 3 | 0 | 10 | 81,397 |
| Palo Pinto | 14 | 1 | 1 | 12 | 53,658 |
| Parker | 4 | 1 | 1 | 2 | 24,597 |
| San Saba | 2 | 0 | 0 | 2 | 4,433 |
| Shackelford | 61 | 9 | 1 | 51 | 162,358 |
| Stephens | 36 | 12 | 3 | 21 | 135,226 |
| Stonewall | 6 | 0 | 0 | 6 | 38,616 |
| Taylor | 58 | 6 | 0 | 52 | 209,630 |
| Throckmorton | 37 | 17 | 0 | 20 | 139,380 |
| Total | 592 | 93 | 15 | 484 | 1,991,068 |

### WEST CENTRAL TEXAS
(District 7-B)
Development Completions by Fields

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Anson | 21 | 13 | 0 | 8 | 72,711 |
| Bartlett | 60 | 51 | 0 | 9 | 201,994 |
| Baum | 7 | 4 | 0 | 3 | 21,510 |
| Blake-Caddo | 16 | 9 | 3 | 4 | 38,026 |
| Brown County | 22 | 9 | 0 | 13 | 33,279 |
| Caldwell Ranch | 10 | 9 | 0 | 1 | 18,618 |
| Callahan County | 43 | 21 | 0 | 22 | 43,844 |
| Chittenden | 4 | 3 | 0 | 1 | 12,877 |
| Cisco | 5 | 2 | 0 | 3 | 16,859 |
| Coleman County | 59 | 39 | 3 | 17 | 78,494 |
| Comanche County | 10 | 7 | 0 | 3 | 4,524 |
| Cook Ranch | 7 | 3 | 0 | 4 | 10,095 |
| Crystal Falls | 4 | 3 | 0 | 1 | 18,292 |
| Double D | 24 | 19 | 0 | 5 | 93,885 |
| Eastland County | 17 | 7 | 2 | 8 | 41,762 |
| Eskota | 10 | 6 | 0 | 4 | 46,104 |
| Gibson | 18 | 16 | 0 | 2 | 50,111 |
| Hardy | 8 | 6 | 0 | 2 | 22,398 |
| Hubbard Creek | 7 | 6 | 0 | 1 | 28,380 |
| Humphrey-Gray | 11 | 9 | 0 | 2 | 27,808 |
| Ibex & E. & So. | 7 | 6 | 0 | 1 | 30,585 |
| Jones County | 95 | 68 | 0 | 27 | 226,832 |
| Jud | 6 | 4 | 0 | 2 | 30,388 |
| Kirk and NW | 34 | 27 | 0 | 7 | 100,353 |
| Kleiner | 11 | 7 | 1 | 3 | 43,181 |
| Lawn | 4 | 3 | 0 | 1 | 12,277 |
| Lee Roy | 4 | 1 | 2 | 1 | 16,095 |
| Morrissett | 5 | 1 | 0 | 4 | 9,194 |
| Murray | 4 | 4 | 0 | 0 | 16,810 |
| Pardue | 15 | 15 | 0 | 0 | 73,196 |
| Pitzer | 12 | 10 | 0 | 2 | 56,430 |
| Reddin | 11 | 10 | 0 | 1 | 28,354 |
| Roby | 7 | 2 | 0 | 5 | 30,101 |
| Round Top | 93 | 84 | 0 | 9 | 447,027 |
| Shackelford County | 163 | 83 | 4 | 76 | 287,614 |
| South Haskell | 6 | 4 | 0 | 2 | 22,909 |
| Stephens County | 47 | 22 | 2 | 23 | 143,277 |
| Talpa | 6 | 6 | 0 | 0 | 20,213 |
| Taylor County | 9 | 7 | 0 | 2 | 23,936 |
| Throckmorton County | 104 | 61 | 1 | 42 | 357,716 |
| Tipton | 5 | 3 | 0 | 2 | 22,857 |
| Wimberly | 11 | 11 | 0 | 0 | 27,536 |
| Woodson | 4 | 2 | 0 | 2 | 18,102 |
| Other fields | 295 | 166 | 10 | 119 | 787,132 |
| Total | 1,321 | 849 | 28 | 444 | 3,713,686 |

### WEST TEXAS
(Districts 8 and 7-C)
Total Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 240 | 213 | 2 | 25 | 1,270,936 |
| February | 161 | 132 | 6 | 23 | 843,031 |
| March | 281 | 253 | 0 | 28 | 1,476,600 |
| April | 222 | 190 | 1 | 31 | 1,236,312 |
| May | 270 | 229 | 3 | 38 | 1,259,891 |
| June | 411 | 331 | 4 | 76 | 2,021,711 |
| July | 234 | 199 | 1 | 34 | 1,116,047 |
| August | 245 | 216 | 1 | 28 | 1,185,713 |
| September | 333 | 294 | 0 | 39 | 1,746,095 |
| October | 266 | 223 | 2 | 41 | 1,266,218 |
| November | 319 | 269 | 2 | 48 | 1,582,926 |
| December | 279 | 239 | 2 | 38 | 1,392,409 |
| Total | 3,261 | 2,788 | 24 | 449 | 16,397,889 |

### WEST TEXAS
(Districts 8 and 7-C)
Wildcat Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 17 | 4 | 0 | 13 | 114,545 |
| February | 15 | 2 | 0 | 13 | 86,061 |
| March | 21 | 6 | 0 | 15 | 139,506 |
| April | 24 | 5 | 0 | 19 | 159,143 |
| May | 31 | 5 | 1 | 25 | 159,835 |
| June | 58 | 6 | 1 | 51 | 379,112 |
| July | 23 | 4 | 1 | 18 | 122,206 |
| August | 20 | 4 | 0 | 16 | 104,654 |
| September | 33 | 7 | 0 | 26 | 161,706 |
| October | 37 | 6 | 2 | 29 | 199,635 |
| November | 35 | 8 | 1 | 26 | 192,370 |
| December | 29 | 6 | 0 | 23 | 126,112 |
| Total | 343 | 63 | 6 | 274 | 1,944,885 |

### WEST TEXAS
(Districts 8 and 7-C)
Development Completions by Months

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 223 | 209 | 2 | 12 | 1,156,391 |
| February | 146 | 130 | 6 | 10 | 756,970 |
| March | 266 | 247 | 6 | 13 | 1,337,094 |
| April | 198 | 185 | 1 | 12 | 1,077,169 |
| May | 239 | 224 | 2 | 13 | 1,100,056 |
| June | 353 | 325 | 3 | 25 | 1,642,599 |
| July | 211 | 195 | 0 | 16 | 993,841 |
| August | 225 | 212 | 1 | 12 | 1,081,059 |
| September | 300 | 287 | 0 | 13 | 1,584,389 |
| October | 229 | 217 | 0 | 12 | 1,066,583 |
| November | 284 | 261 | 1 | 22 | 1,390,556 |
| December | 250 | 233 | 2 | 15 | 1,266,297 |
| Total | 2,918 | 2,725 | 18 | 175 | 14,453,004 |

### WEST TEXAS
(Districts 8 and 7-C)
Wildcat Completions by Counties

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Andrews | 12 | 1 | 0 | 11 | 89,727 |
| Borden | 9 | 4 | 0 | 5 | 75,491 |
| Cochran | 3 | 2 | 0 | 1 | 20,926 |
| Coke | 11 | 2 | 0 | 9 | 59,646 |
| Concho | 3 | 0 | 0 | 3 | 7,440 |
| Crane | 10 | 2 | 0 | 8 | 57,446 |
| Crockett | 26 | 0 | 2 | 24 | 136,393 |
| Culberson | 9 | 0 | 0 | 9 | 19,416 |
| Dawson | 3 | 1 | 0 | 2 | 27,639 |
| Dickens | 1 | 0 | 0 | 1 | 8,117 |
| Ector | 4 | 2 | 0 | 2 | 23,205 |
| Gaines | 15 | 3 | 0 | 12 | 137,916 |
| Garza | 7 | 1 | 0 | 6 | 32,779 |
| Glasscock | 2 | 0 | 0 | 2 | 13,901 |
| Hale | 2 | 0 | 0 | 2 | 15,209 |
| Hockley | 2 | 0 | 0 | 2 | 13,975 |
| Howard | 4 | 1 | 0 | 3 | 28,536 |
| Irion | 4 | 0 | 0 | 4 | 28,977 |
| Kent | 3 | 0 | 0 | 3 | 17,974 |
| Kimble | 3 | 0 | 0 | 3 | 7,695 |
| Lamb | 2 | 0 | 0 | 2 | 12,307 |
| Loving | 1 | 0 | 0 | 1 | 3,442 |
| Lubbock | 2 | 0 | 0 | 2 | 15,065 |
| Lynn | 4 | 0 | 0 | 4 | 37,835 |
| McCulloch | 2 | 0 | 0 | 2 | 4,963 |
| Menard | 1 | 0 | 0 | 1 | 3,559 |
| Midland | 5 | 2 | 0 | 3 | 51,329 |
| Mitchell | 11 | 2 | 0 | 9 | 70,592 |
| Motley | 2 | 0 | 0 | 2 | 15,167 |
| Pecos | 50 | 2 | 0 | 48 | 146,535 |
| Reagan | 8 | 1 | 0 | 7 | 62,787 |
| Reeves | 2 | 0 | 0 | 2 | 8,539 |
| Runnels | 29 | 14 | 2 | 13 | 119,765 |
| Schleicher | 16 | 2 | 0 | 14 | 88,125 |
| Scurry | 29 | 13 | 0 | 16 | 206,160 |
| Sterling | 6 | 2 | 0 | 4 | 16,836 |
| Sutton | 5 | 0 | 1 | 4 | 25,507 |
| Terrell | 2 | 0 | 1 | 1 | 17,984 |
| Terry | 3 | 1 | 0 | 2 | 22,695 |
| Tom Green | 14 | 1 | 0 | 13 | 64,135 |
| Upton | 6 | 3 | 0 | 3 | 57,269 |
| Val Verde | 2 | 0 | 0 | 2 | 4,260 |
| Ward | 3 | 0 | 0 | 3 | 25,553 |
| Winkler | 2 | 1 | 0 | 1 | 21,599 |
| Yoakum | 3 | 0 | 0 | 3 | 20,469 |
| Total | 343 | 63 | 6 | 274 | 1,944,885 |

### WEST TEXAS
(Districts 8 and 7-C)
Development Completions by Fields

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Abell | 7 | 0 | 0 | 7 | 32,099 |
| Adair | 26 | 25 | 0 | 1 | 125,340 |
| Abell and NW | 7 | 7 | 0 | 0 | 36,853 |
| Andector, Ellenburger | 21 | 20 | 0 | 1 | 178,830 |
| Anton-Irish | 34 | 34 | 0 | 0 | 200,503 |
| Arick | 5 | 1 | 0 | 4 | 27,089 |
| Barnhart | 12 | 12 | 0 | 0 | 109,644 |
| Bateman Ranch | 9 | 8 | 0 | 1 | 39,118 |
| Beddo | 9 | 4 | 0 | 5 | 29,603 |
| Beddo Strawn | 5 | 4 | 0 | 1 | 17,804 |
| Benedum | 25 | 23 | 0 | 2 | 285,747 |
| Block 12 | 16 | 7 | 1 | 8 | 59,600 |
| Block 31 | 17 | 16 | 0 | 1 | 159,913 |
| Bronte | 16 | 15 | 0 | 1 | 73,306 |
| Cedar Lake | 17 | 16 | 0 | 1 | 80,923 |
| Coleman Ranch | 6 | 5 | 0 | 1 | 17,350 |
| Cowden | 5 | 4 | 0 | 1 | 16,705 |
| Crockett | 11 | 10 | 0 | 1 | 15,678 |
| Diamond M | 51 | 51 | 0 | 0 | 342,162 |
| Dixie Land | 3 | 2 | 0 | 1 | 11,689 |
| Dollar Hide Clearfork | 4 | 4 | 0 | 0 | 32,529 |
| Dollar Hide Ellenburger | 26 | 26 | 0 | 0 | 257,279 |
| Dollar Hide Silurian | 24 | 24 | 0 | 0 | 208,989 |
| Doss | 5 | 5 | 0 | 0 | 35,651 |
| Dune | 16 | 15 | 0 | 1 | 53,585 |
| Edwards | 4 | 4 | 0 | 0 | 14,615 |
| Flanagan | 7 | 6 | 0 | 1 | 61,048 |
| Fort Stockton | 20 | 18 | 0 | 2 | 58,071 |
| Fuhrman-Mascho | 27 | 25 | 0 | 2 | 123,274 |
| Fullerton Clearfork | 11 | 10 | 0 | 1 | 78,315 |
| Fullerton Devonian | 7 | 6 | 0 | 1 | 64,213 |
| Fullerton Ellenburger | 4 | 4 | 0 | 0 | 43,182 |
| Garza | 49 | 47 | 1 | 1 | 151,604 |
| Goldsmith Clearfork | 24 | 24 | 0 | 0 | 153,598 |
| Goldsmith San Andres | 37 | 37 | 0 | 0 | 181,098 |
| Goldsmith 5600 | 24 | 24 | 0 | 0 | 136,367 |
| Good | 8 | 8 | 0 | 0 | 65,266 |
| Howard-Glasscock | 33 | 27 | 0 | 6 | 84,576 |
| Iatan-East Howard | 6 | 6 | 0 | 0 | 17,193 |
| Jameson | 26 | 25 | 0 | 1 | 164,050 |
| Jimburt | 5 | 1 | 0 | 4 | 14,329 |
| Jordan Connell | 4 | 4 | 0 | 0 | 35,588 |
| Jordan Ellenburger | 17 | 15 | 0 | 2 | 154,186 |
| Jordan San Andres | 4 | 4 | 0 | 0 | 14,595 |
| Jordan Tubb | 9 | 9 | 0 | 0 | 47,461 |
| Kelley | 45 | 44 | 0 | 1 | 306,687 |
| Keystone Colby | 16 | 16 | 0 | 0 | 54,557 |
| Keystone Devonian | 13 | 11 | 0 | 2 | 108,069 |
| Keystone Silurian | 8 | 7 | 0 | 1 | 61,783 |
| Keystone, S. | 5 | 5 | 0 | 0 | 33,104 |
| Landon | 10 | 8 | 0 | 2 | 69,564 |
| Leonard | 5 | 4 | 0 | 1 | 15,633 |
| Levelland | 418 | 410 | 1 | 7 | 2,046,017 |
| McCamey | 22 | 21 | 0 | 1 | 62,811 |
| McElroy | 49 | 48 | 0 | 1 | 151,841 |
| Martin Ellenburger | 7 | 7 | 0 | 0 | 62,439 |
| Martin McKee | 11 | 11 | 0 | 0 | 92,994 |
| Means | 19 | 19 | 0 | 0 | 86,104 |
| Midland Farms | 42 | 41 | 0 | 1 | 200,978 |
| Midway Lane | 9 | 8 | 0 | 1 | 68,483 |
| Millican | 11 | 8 | 0 | 3 | 67,595 |
| N. Cowden | 29 | 28 | 0 | 1 | 133,279 |
| N. Riley | 13 | 11 | 1 | 1 | 89,434 |
| N. Snyder | 175 | 174 | 0 | 1 | 1,204,008 |
| N. Scarborough | 7 | 7 | 0 | 0 | 23,063 |
| N. Ward-Estes | 24 | 23 | 0 | 1 | 73,095 |
| N. Winters | 13 | 11 | 0 | 2 | 41,171 |
| Olson | 9 | 9 | 0 | 0 | 19,099 |
| Orient | 6 | 4 | 0 | 2 | 9,426 |
| Pecos Valley, high gravity | 94 | 75 | 4 | 15 | 148,557 |
| Robertson | 14 | 13 | 0 | 1 | 38,512 |
| Russell | 6 | 6 | 0 | 0 | 44,687 |
| Sand Hills | 33 | 31 | 2 | 0 | 125,218 |
| Seminole | 5 | 4 | 0 | 1 | 27,504 |
| Shafter Lake, Wolfcamp and Devonian | 39 | 36 | 0 | 3 | 373,205 |
| Shafter Lake Ellenburger | 8 | 8 | 0 | 0 | 92,696 |
| Shafter Lake gas | 5 | 0 | 5 | 0 | 15,292 |
| Sharon Ridge Canyon | 24 | 24 | 0 | 0 | 160,512 |
| Sharon Ridge 1700 | 106 | 103 | 0 | 3 | 193,583 |
| Shipley | 4 | 4 | 0 | 0 | 10,926 |
| Slaughter | 103 | 102 | 0 | 1 | 519,884 |
| Smyer | 34 | 34 | 0 | 0 | 199,891 |
| S. Cowden | 84 | 79 | 0 | 5 | 382,274 |
| S. Fullerton | 4 | 4 | 0 | 0 | 44,012 |
| Susan Peak | 30 | 30 | 0 | 0 | 175,858 |
| Three-Bar | 10 | 10 | 0 | 0 | 81,838 |
| Tippett | 7 | 6 | 0 | 1 | 44,285 |
| Toborg | 132 | 122 | 0 | 10 | 65,554 |

# Physical culture course for steel pipe

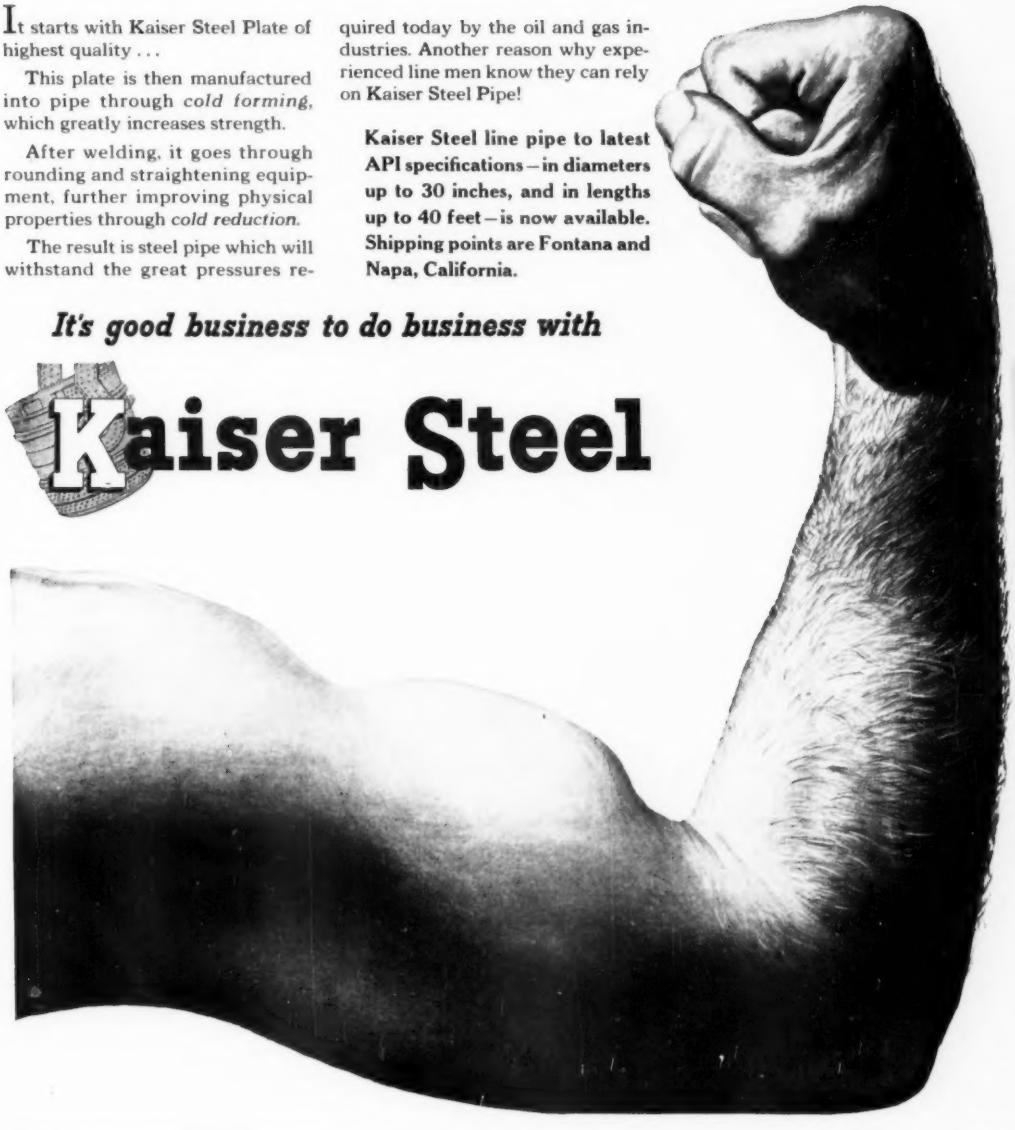
It starts with Kaiser Steel Plate of highest quality . . .

This plate is then manufactured into pipe through *cold forming*, which greatly increases strength.

After welding, it goes through rounding and straightening equipment, further improving physical properties through *cold reduction*.

The result is steel pipe which will withstand the great pressures required today by the oil and gas industries. Another reason why experienced line men know they can rely on Kaiser Steel Pipe!

**Kaiser Steel line pipe to latest API specifications—in diameters up to 30 inches, and in lengths up to 40 feet—is now available. Shipping points are Fontana and Napa, California.**



***It's good business to do business with***

# Kaiser Steel

**KAISER STEEL PIPE SPECIFICATIONS • All pipe manufactured to latest A.S.T.M. and A.P.I. specifications**

| Type | Diameter | Length | Wall Thickness | Shipping Point |
|---|---|---|---|---|
| Continuous Weld – Threaded and Coupled | 1/2" to 4" nominal I.D. | Uniform 21' | Standard | Fontana, Calif. |
| Continuous Weld – Plain End | 2 3/8" to 4 1/2" O.D. | Up to 40' | Standard | Fontana, Calif. |
| Electric Resistance Weld – Plain End | 8 5/8" to 20" O.D. | Up to 40' | .188" to .500" | Napa, Calif. – Basalt Kaiser |
| Electric Resistance Weld – Plain End | 5 7/8" to 12 3/4" O.D. | Up to 55' | .188" to .400" | Fontana, Calif. |
| Electric Fusion Weld – Expanded – Plain End | 22" to 30" O.D. | Up to 40' | .188" to .500" | Napa, Calif. – Basalt-Kaiser |

**Prompt, dependable delivery at competitive prices • KAISER STEEL CORPORATION Los Angeles, Oakland, Seattle, Houston, New York**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Todd Deep | 6 | 6 | 0 | 0 | 37,709 |
| Tunstill | 48 | 41 | 0 | 7 | 161,697 |
| TXL Clearfork | 21 | 20 | 0 | 1 | 121,800 |
| TXL Upper Clearfork | 12 | 12 | 0 | 0 | 70,549 |
| TXL Devonian | 9 | 7 | 0 | 2 | 75,368 |
| TXL Ellenburger | 5 | 5 | 0 | 0 | 45,585 |
| University-Waddell | 6 | 5 | 0 | 1 | 64,057 |
| Vealmoor | 13 | 12 | 0 | 1 | 98,288 |
| Waddell | 5 | 4 | 1 | 0 | 17,528 |
| Ella Waddell | 5 | 5 | 0 | 0 | 17,011 |
| Wasson | 24 | 24 | 0 | 0 | 131,109 |
| Welch | 13 | 13 | 0 | 0 | 59,395 |
| W. Parker | 7 | 7 | 0 | 0 | 58,103 |
| W. Seminole | 28 | 28 | 0 | 0 | 144,592 |
| W. Smyer | 7 | 7 | 0 | 0 | 41,940 |
| Wheeler | 10 | 10 | 0 | 0 | 90,446 |
| World-Powell | 25 | 24 | 0 | 1 | 66,717 |
| Yarborough & Allen | 10 | 10 | 0 | 0 | 108,022 |
| Yates | 10 | 7 | 0 | 3 | 14,765 |
| Yellowhouse | 4 | 4 | 0 | 0 | 18,286 |
| Miscellaneous | 239 | 206 | 2 | 31 | 1,073,897 |
| Total | 2,918 | 2,725 | 18 | 175 | 14,453,004 |

## NORTH CENTRAL TEXAS
(District 9)

### Total Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 168 | 83 | 0 | 85 | 446,198 |
| February | 137 | 71 | 0 | 66 | 417,238 |
| March | 232 | 136 | 0 | 96 | 675,382 |
| April | 219 | 115 | 1 | 103 | 618,790 |
| May | 181 | 99 | 1 | 81 | 520,589 |
| June | 263 | 137 | 1 | 125 | 722,118 |
| July | 200 | 128 | 0 | 72 | 495,628 |
| August | 223 | 148 | 0 | 75 | 606,460 |
| September | 264 | 163 | 2 | 99 | 717,631 |
| October | 210 | 128 | 2 | 80 | 593,526 |
| November | 268 | 168 | 1 | 99 | 752,434 |
| December | 206 | 124 | 1 | 81 | 560,599 |
| Total | 2,571 | 1,500 | 9 | 1,062 | 7,126,593 |

## NORTH CENTRAL TEXAS
(District 9)

### Wildcat Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 38 | 6 | 0 | 32 | 130,381 |
| February | 26 | 6 | 0 | 20 | 98,679 |
| March | 45 | 14 | 0 | 31 | 195,874 |
| April | 41 | 5 | 0 | 36 | 153,636 |
| May | 45 | 4 | 1 | 40 | 181,235 |
| June | 43 | 3 | 1 | 39 | 137,458 |
| July | 40 | 6 | 0 | 34 | 121,983 |
| August | 38 | 12 | 0 | 26 | 129,235 |
| September | 47 | 11 | 1 | 35 | 150,914 |
| October | 42 | 7 | 2 | 33 | 164,814 |
| November | 49 | 6 | 1 | 42 | 169,672 |
| December | 21 | 3 | 0 | 18 | 95,990 |
| Total | 475 | 83 | 6 | 386 | 1,729,871 |

## NORTH CENTRAL TEXAS
(District 9)

### Development Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 130 | 77 | 0 | 53 | 315,817 |
| February | 111 | 65 | 0 | 46 | 318,559 |
| March | 187 | 122 | 0 | 65 | 479,508 |
| April | 178 | 110 | 1 | 67 | 465,154 |
| May | 136 | 95 | 0 | 41 | 339,354 |
| June | 220 | 134 | 0 | 86 | 584,660 |
| July | 160 | 122 | 0 | 38 | 373,645 |
| August | 185 | 136 | 0 | 49 | 477,225 |
| September | 217 | 152 | 1 | 64 | 566,717 |
| October | 168 | 121 | 0 | 47 | 428,712 |
| November | 219 | 162 | 0 | 57 | 582,762 |
| December | 185 | 121 | 1 | 63 | 464,609 |
| Total | 2,096 | 1,417 | 3 | 676 | 5,396,722 |

## NORTH CENTRAL TEXAS
(District 9)

### Wildcat Completions by Counties

| County | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Archer | 143 | 19 | 0 | 124 | 432,517 |
| Baylor | 17 | 2 | 0 | 15 | 49,657 |
| Clay | 41 | 9 | 0 | 32 | 190,711 |
| Cooke | 54 | 4 | 1 | 49 | 155,164 |
| Jack | 48 | 12 | 2 | 34 | 259,714 |
| Knox | 5 | 0 | 0 | 5 | 22,110 |
| Montague | 38 | 9 | 0 | 29 | 193,129 |
| Parker | 1 | 0 | 1 | 0 | 4,002 |
| Wichita | 42 | 9 | 0 | 33 | 122,719 |
| Wilbarger | 14 | 4 | 0 | 10 | 38,421 |
| Wise | 13 | 3 | 1 | 9 | 78,171 |
| Young | 59 | 12 | 1 | 46 | 183,556 |
| Total | 475 | 83 | 6 | 386 | 1,729,871 |

## NORTH CENTRAL TEXAS
(District 9)

### Development Completions by Fields

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Acme | 15 | 10 | 0 | 5 | 70,910 |
| Antelope | 4 | 0 | 0 | 4 | 10,317 |
| Archer County | 472 | 317 | 0 | 155 | 764,634 |
| Bryson | 7 | 5 | 1 | 1 | 28,757 |
| Burns-Jones | 6 | 4 | 0 | 2 | 19,220 |
| Capps | 4 | 1 | 0 | 3 | 19,420 |
| Chalk Hill | 12 | 11 | 0 | 1 | 45,826 |
| Cherryhomes | 8 | 8 | 0 | 0 | 37,823 |
| Chico and West | 36 | 35 | 0 | 1 | 209,521 |
| Cooke County | 42 | 27 | 0 | 15 | 65,639 |
| Electra | 8 | 3 | 0 | 5 | 14,785 |
| Garvey | 15 | 13 | 0 | 2 | 48,004 |
| Grace | 5 | 4 | 0 | 1 | 11,910 |
| Hammon | 12 | 12 | 0 | 0 | 33,203 |
| Hoefle | 6 | 5 | 0 | 1 | 26,882 |
| Holliday and E. | 7 | 4 | 0 | 3 | 24,658 |
| Hull-Silk | 11 | 11 | 0 | 0 | 30,068 |
| Hundley | 10 | 7 | 0 | 3 | 63,635 |
| Jack County | 50 | 30 | 0 | 20 | 97,630 |
| Joy | 57 | 45 | 0 | 12 | 257,310 |
| Kelsey | 5 | 3 | 0 | 2 | 23,514 |
| Kempner | 44 | 37 | 0 | 7 | 173,956 |
| Kendall | 11 | 10 | 0 | 1 | 30,527 |
| King-Wilson | 13 | 6 | 0 | 7 | 45,050 |
| Lazy B | 7 | 7 | 0 | 0 | 39,183 |
| Lewis-Stuart | 10 | 7 | 0 | 3 | 64,682 |
| Lynn | 7 | 5 | 0 | 2 | 18,681 |
| Medders-Hancock | 6 | 6 | 0 | 0 | 29,421 |
| Montague County | 81 | 73 | 0 | 8 | 143,735 |
| Norwood Strawn | 6 | 6 | 0 | 0 | 24,727 |
| Olney district | 13 | 5 | 0 | 8 | 16,262 |
| Post Oak | 9 | 9 | 0 | 0 | 57,194 |
| Prideaux | 9 | 7 | 0 | 2 | 11,521 |
| Reno | 33 | 31 | 0 | 2 | 125,804 |
| Ringgold | 12 | 10 | 0 | 2 | 66,383 |
| Shannon | 7 | 4 | 0 | 3 | 38,858 |
| South Bowers | 5 | 2 | 0 | 3 | 17,267 |
| Sunshine Hill | 7 | 6 | 0 | 1 | 4,964 |
| Vogtsberger | 11 | 8 | 0 | 3 | 51,055 |
| Walnut Bend | 21 | 20 | 0 | 1 | 83,510 |
| West | 5 | 3 | 0 | 2 | 22,562 |
| Wichita County | 375 | 239 | 0 | 136 | 530,860 |
| Wilbarger County | 37 | 24 | 0 | 13 | 70,487 |
| Wolfe | 12 | 12 | 0 | 0 | 54,655 |
| Woodbine | 13 | 6 | 0 | 7 | 56,081 |
| Worsham-Steed | 43 | 37 | 1 | 5 | 201,602 |
| Young County | 136 | 69 | 0 | 67 | 241,398 |
| Miscellaneous | 371 | 213 | 1 | 157 | 1,272,631 |
| Total | 2,096 | 1,417 | 3 | 676 | 5,396,722 |

## TEXAS PANHANDLE
(District 10)

### Total Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 89 | 45 | 34 | 10 | 277,524 |
| February | 96 | 49 | 39 | 8 | 304,317 |
| March | 75 | 51 | 21 | 3 | 229,260 |
| April | 70 | 37 | 30 | 3 | 221,891 |
| May | 98 | 37 | 52 | 9 | 303,833 |
| June | 83 | 61 | 18 | 4 | 274,818 |
| July | 93 | 70 | 18 | 5 | 280,187 |
| August | 50 | 37 | 8 | 5 | 160,827 |
| September | 81 | 48 | 26 | 7 | 273,321 |
| October | 69 | 40 | 24 | 5 | 209,503 |
| November | 97 | 62 | 30 | 5 | 295,226 |
| December | 58 | 43 | 10 | 5 | 184,816 |
| Total | 959 | 580 | 310 | 69 | 3,015,528 |

## TEXAS PANHANDLE
(District 10)

### Wildcat Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 0 | 0 | 0 | 0 | 0 |
| February | 2 | 0 | 0 | 2 | 13,218 |
| March | 0 | 0 | 0 | 0 | 0 |
| April | 2 | 1 | 0 | 1 | 12,427 |
| May | 2 | 0 | 0 | 2 | 7,127 |
| June | 4 | 0 | 0 | 4 | 24,488 |
| July | 1 | 0 | 0 | 1 | 5,265 |
| August | 2 | 0 | 0 | 2 | 17,889 |
| September | 5 | 0 | 1 | 4 | 41,236 |
| October | 0 | 0 | 0 | 0 | 0 |
| November | 0 | 0 | 0 | 0 | 0 |
| December | 1 | 0 | 0 | 1 | 14,278 |
| Total | 19 | 1 | 1 | 17 | 135,928 |

## TEXAS PANHANDLE
(District 10)

### Development Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 89 | 45 | 34 | 10 | 277,524 |
| February | 94 | 49 | 39 | 6 | 291,099 |
| March | 75 | 51 | 21 | 3 | 229,260 |
| April | 68 | 36 | 30 | 2 | 209,464 |
| May | 96 | 37 | 52 | 7 | 296,706 |
| June | 79 | 61 | 18 | 0 | 250,330 |
| July | 92 | 70 | 18 | 4 | 274,922 |
| August | 48 | 37 | 8 | 3 | 142,938 |
| September | 76 | 48 | 25 | 3 | 232,085 |
| October | 69 | 40 | 24 | 5 | 209,508 |
| November | 97 | 62 | 30 | 5 | 295,226 |
| December | 57 | 43 | 10 | 4 | 170,538 |
| Total | 940 | 579 | 309 | 52 | 2,879,600 |

## TEXAS PANHANDLE
(District 10)

### Wildcat Completions by Counties

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Carson | 1 | 0 | 0 | 1 | 5,365 |
| Childress | 1 | 0 | 0 | 1 | 2,870 |
| Collingsworth | 1 | 0 | 0 | 1 | 2,985 |
| Dallam | 1 | 0 | 0 | 1 | 4,560 |
| Deaf Smith | 1 | 0 | 0 | 1 | 10,191 |
| Donley | 1 | 0 | 0 | 1 | 5,265 |
| Gray | 1 | 0 | 0 | 1 | 2,567 |
| Hall | 1 | 0 | 0 | 1 | 5,243 |
| Hansford | 4 | 0 | 0 | 4 | 29,734 |
| Hartley | 1 | 0 | 0 | 1 | 7,853 |
| Lipscomb | 1 | 0 | 0 | 1 | 14,278 |
| Ochiltree | 2 | 0 | 0 | 2 | 16,665 |
| Roberts | 2 | 1 | 1 | 0 | 18,694 |
| Swisher | 1 | 0 | 0 | 1 | 9,658 |
| Total | 19 | 1 | 1 | 17 | 135,928 |

## TEXAS PANHANDLE
(District 10)

### Development Completions by Counties

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Carson | 96 | 77 | 15 | 4 | 297,238 |
| Gray | 154 | 114 | 26 | 14 | 449,939 |
| Hansford | 18 | 0 | 15 | 3 | 54,890 |
| Hartley | 3 | 0 | 2 | 1 | 11,049 |
| Hutchinson | 390 | 365 | 10 | 15 | 1,199,493 |
| Moore | 92 | 4 | 82 | 6 | 295,046 |
| Potter | 20 | 0 | 20 | 0 | 54,758 |
| Sherman | 113 | 0 | 112 | 1 | 365,016 |
| Wheeler | 15 | 4 | 3 | 8 | 31,854 |
| Miscellaneous | 39 | 15 | 24 | 0 | 120,317 |
| Total | 940 | 579 | 309 | 52 | 2,879,600 |

## SOUTHEAST NEW MEXICO
### Total Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 37 | 22 | 3 | 12 | 176,786 |
| February | 50 | 38 | 3 | 9 | 261,915 |
| March | 42 | 34 | 3 | 5 | 191,170 |
| April | 44 | 25 | 8 | 11 | 209,314 |
| May | 41 | 26 | 6 | 9 | 192,330 |
| June | 50 | 37 | 5 | 8 | 215,805 |
| July | 29 | 20 | 1 | 8 | 150,469 |
| August | 32 | 25 | 2 | 5 | 166,315 |
| September | 40 | 26 | 2 | 12 | 256,528 |
| October | 42 | 28 | 6 | 8 | 181,196 |
| November | 44 | 34 | 4 | 6 | 200,660 |
| December | 35 | 19 | 5 | 11 | 166,371 |
| Total | 486 | 334 | 48 | 104 | 2,368,859 |

## SOUTHEAST NEW MEXICO
### Wildcat Completions by Months

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 3 | 1 | 0 | 2 | 16,035 |
| February | 6 | 1 | 0 | 5 | 37,795 |
| March | 2 | 0 | 0 | 2 | 7,873 |
| April | 3 | 0 | 0 | 3 | 20,810 |
| May | 8 | 3 | 0 | 5 | 37,106 |
| June | 8 | 1 | 0 | 7 | 51,800 |
| July | 5 | 1 | 0 | 4 | 38,879 |
| August | 4 | 2 | 0 | 2 | 29,459 |
| September | 10 | 3 | 0 | 7 | 58,093 |
| October | 7 | 1 | 0 | 6 | 31,157 |
| November | 3 | 1 | 0 | 2 | 8,237 |
| December | 7 | 0 | 0 | 7 | 30,106 |
| Total | 66 | 14 | 0 | 52 | 367,350 |

He may be drilling right next to you; he may be the toolpusher on the next lease—but he's not far from you. He's a Lane-Wells' customer. Ask *him* why he uses Lane-Wells perforating. And he'll probably tell you something like this: "They do a darned efficient job", or "Deep penetration", or "I can rely on Lane-Wells' depth measurements; they put the perforations right where I tell 'em", or "Lane-Wells gives me quick service, no matter in what field I'm drilling". Those are just a few of the good reasons which we ourselves have been told by our customers — and remember, some of our customers have been with us for seventeen years, ever since Lane-Wells started. They evidently like Lane-Wells perforating service. Let one of them tell you why—then ask your Lane-Wells man for the complete story. It pays!

*** Ask Him About**

LANE-WELLS COMPANY

**BETTER PERFORATING**

LOS ANGELES • HOUSTON • OKLAHOMA CITY

LANE-WELLS CANADIAN COMPANY • PETRO-TECH SERVICE CO. IN VENEZUELA
General Offices, Export Office and Plant • 5610 SO. SOTO STREET, LOS ANGELES 11, CALIFORNIA

AG-301

### SOUTHEAST NEW MEXICO
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 34 | 21 | 3 | 10 | 160,751 |
| February | 44 | 37 | 3 | 4 | 224,120 |
| March | 40 | 34 | 3 | 3 | 183,297 |
| April | 41 | 25 | 8 | 8 | 188,504 |
| May | 33 | 23 | 6 | 4 | 155,224 |
| June | 42 | 36 | 5 | 1 | 164,005 |
| July | 24 | 19 | 1 | 4 | 111,590 |
| August | 28 | 23 | 2 | 3 | 136,856 |
| September | 30 | 23 | 2 | 5 | 198,435 |
| October | 35 | 27 | 6 | 2 | 150,039 |
| November | 41 | 33 | 4 | 4 | 192,423 |
| December | 28 | 19 | 5 | 4 | 136,265 |
| Total | 420 | 320 | 48 | 52 | 2,001,509 |

### SOUTHEAST NEW MEXICO
**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Chaves | 8 | 0 | 0 | 8 | 43,689 |
| DeBaca | 2 | 0 | 0 | 2 | 11,545 |
| Eddy | 24 | 3 | 0 | 21 | 67,709 |
| Lea | 32 | 11 | 0 | 21 | 244,407 |
| Total | 66 | 14 | 0 | 52 | 367,350 |

### SOUTHEAST NEW MEXICO
**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Artesia | 26 | 20 | 0 | 6 | 55,716 |
| Black River | 4 | 1 | 0 | 3 | 8,004 |
| Blinebry | 2 | 1 | 0 | 1 | 12,416 |
| Bowers | 6 | 6 | 0 | 0 | 20,232 |
| Brunson | 20 | 19 | 1 | 0 | 152,482 |
| Caprock | 6 | 5 | 0 | 1 | 18,360 |
| Cooper-Jal | 19 | 9 | 6 | 4 | 65,324 |
| Crossroads | 7 | 5 | 0 | 2 | 84,680 |
| Drinkard & N. | 62 | 59 | 0 | 3 | 406,108 |
| Eunice | 3 | 2 | 1 | 0 | 20,801 |
| Eunice, S. | 11 | 5 | 6 | 0 | 40,724 |
| Fren | 7 | 6 | 0 | 1 | 14,432 |
| Grayburg-Jackson | 19 | 18 | 0 | 1 | 57,522 |
| Hare | 8 | 8 | 0 | 0 | 61,894 |
| Hobbs | 3 | 3 | 0 | 0 | 12,482 |
| Knowles | 4 | 4 | 0 | 0 | 47,091 |
| Langlie-Mattix | 60 | 33 | 27 | 0 | 207,127 |
| Loco Hills | 7 | 7 | 0 | 0 | 20,775 |
| Lovington & W | 4 | 4 | 0 | 0 | 20,370 |
| Lynn | 2 | 1 | 1 | 0 | 7,058 |
| Maljamar & N. | 12 | 9 | 0 | 3 | 49,754 |
| Monument | 4 | 2 | 2 | 0 | 22,281 |
| Nichols | 5 | 4 | 0 | 1 | 15,394 |
| N. Shugart | 5 | 3 | 0 | 2 | 17,880 |
| Paddock | 5 | 5 | 0 | 0 | 26,193 |
| Penrose-Skelly | 5 | 2 | 1 | 2 | 18,310 |
| Red Lake | 12 | 8 | 0 | 4 | 22,863 |
| Robert & W. | 6 | 6 | 0 | 0 | 25,993 |
| Sawyer | 2 | 2 | 0 | 0 | 9,984 |
| Teague | 4 | 4 | 0 | 0 | 37,817 |
| Turkey Track | 4 | 3 | 0 | 1 | 10,504 |
| Vacuum | 6 | 6 | 0 | 0 | 28,163 |
| Warren McKee | 2 | 1 | 0 | 1 | 19,243 |
| Wilson & W. | 10 | 7 | 1 | 2 | 27,361 |
| Miscellaneous | 58 | 42 | 2 | 14 | 336,171 |
| Total | 420 | 320 | 48 | 52 | 2,001,509 |

### NORTH LOUISIANA
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 113 | 81 | 12 | 20 | 340,696 |
| February | 64 | 42 | 7 | 15 | 233,510 |
| March | 77 | 52 | 11 | 14 | 254,488 |
| April | 71 | 48 | 8 | 15 | 248,592 |
| May | 71 | 48 | 7 | 16 | 234,518 |
| June | 142 | 89 | 18 | 35 | 418,413 |
| July | 140 | 83 | 19 | 39 | 419,836 |
| August | 143 | 93 | 18 | 32 | 408,261 |
| September | 211 | 141 | 39 | 31 | 655,873 |
| October | 121 | 69 | 16 | 36 | 346,181 |
| November | 145 | 90 | 16 | 39 | 468,136 |
| December | 150 | 91 | 21 | 38 | 424,598 |
| Total | 1,448 | 927 | 192 | 329 | 4,453,102 |

### NORTH LOUISIANA
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 8 | 0 | 0 | 8 | 42,107 |
| February | 6 | 0 | 0 | 6 | 28,583 |
| March | 6 | 0 | 0 | 6 | 23,303 |
| April | 6 | 1 | 0 | 5 | 42,870 |
| May | 7 | 0 | 0 | 7 | 41,088 |
| June | 13 | 2 | 0 | 11 | 58,904 |
| July | 12 | 2 | 0 | 10 | 73,645 |
| August | 8 | 0 | 0 | 8 | 36,435 |
| September | 10 | 0 | 0 | 10 | 66,151 |
| October | 9 | 1 | 0 | 8 | 32,862 |
| November | 13 | 1 | 0 | 12 | 68,176 |
| December | 8 | 2 | 0 | 6 | 38,181 |
| Total | 106 | 9 | 0 | 97 | 552,305 |

### NORTH LOUISIANA
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 105 | 81 | 12 | 12 | 298,589 |
| February | 58 | 42 | 7 | 9 | 204,927 |
| March | 71 | 52 | 11 | 8 | 231,185 |
| April | 65 | 47 | 8 | 10 | 205,722 |
| May | 64 | 48 | 7 | 9 | 193,430 |
| June | 129 | 87 | 18 | 24 | 359,509 |
| July | 128 | 81 | 19 | 28 | 346,191 |
| August | 135 | 93 | 18 | 24 | 371,826 |
| September | 201 | 141 | 39 | 21 | 589,722 |
| October | 112 | 68 | 16 | 28 | 313,319 |
| November | 132 | 89 | 16 | 27 | 309,960 |
| December | 142 | 89 | 21 | 32 | 386,417 |
| Total | 1,342 | 918 | 192 | 232 | 3,900,797 |

### NORTH LOUISIANA
**Wildcat Completions by Parishes**

| Parish— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Bossier | 19 | 2 | 0 | 17 | 93,055 |
| Caddo | 6 | 1 | 0 | 5 | 38,389 |
| Caldwell | 3 | 0 | 0 | 3 | 15,860 |
| Catahoula | 6 | 2 | 0 | 4 | 47,356 |
| Claiborne | 4 | 0 | 0 | 4 | 36,054 |
| Concordia | 5 | 2 | 0 | 3 | 41,858 |
| DeSoto | 3 | 0 | 0 | 3 | 17,063 |
| East Carroll | 2 | 0 | 0 | 2 | 8,226 |
| Franklin | 2 | 0 | 0 | 2 | 6,889 |
| Grant | 1 | 0 | 0 | 1 | 4,511 |
| Jackson | 2 | 0 | 0 | 2 | 15,060 |
| LaSalle | 5 | 1 | 0 | 4 | 26,133 |
| Lincoln | 1 | 0 | 0 | 1 | 8,819 |
| Madison | 5 | 0 | 0 | 5 | 25,159 |
| Morehouse | 2 | 0 | 0 | 2 | 12,504 |
| Natchitoches | 4 | 0 | 0 | 4 | 26,815 |
| Ouachita | 2 | 0 | 0 | 2 | 15,125 |
| Red River | 2 | 0 | 0 | 2 | 6,161 |
| Richland | 1 | 0 | 0 | 1 | 3,305 |
| Sabine | 6 | 0 | 0 | 6 | 24,163 |
| Tensas | 3 | 0 | 0 | 3 | 25,914 |
| Union | 11 | 0 | 0 | 11 | 31,784 |
| Webster | 2 | 0 | 0 | 2 | 4,823 |
| Winn | 9 | 1 | 0 | 8 | 17,269 |
| Total | 106 | 9 | 0 | 97 | 552,305 |

### NORTH LOUISIANA
**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Ada | 8 | 1 | 4 | 3 | 57,040 |
| Athens | 11 | 9 | 0 | 2 | 87,099 |
| Bear Creek | 4 | 0 | 2 | 2 | 32,811 |
| Bellevue | 78 | 52 | 1 | 25 | 105,413 |
| Benson | 8 | 7 | 0 | 1 | 16,360 |
| Big Creek-Delhi | 6 | 1 | 1 | 4 | 18,410 |
| Caddo-Pine Island | 646 | 564 | 11 | 71 | 1,183,103 |
| Catahoula Lake, North & West | 19 | 12 | 0 | 7 | 83,089 |
| Converse | 12 | 6 | 0 | 6 | 28,940 |
| Cotton Valley | 8 | 4 | 1 | 3 | 73,429 |
| Delhi | 9 | 1 | 2 | 6 | 32,299 |
| DeSoto-Red River | 26 | 16 | 0 | 10 | 55,350 |
| Dykesville | 4 | 2 | 0 | 2 | 28,769 |
| E. Haynesville | 13 | 12 | 0 | 1 | 110,806 |
| Haynesville | 15 | 15 | 0 | 0 | 156,894 |
| Hosston | 11 | 10 | 1 | 0 | 26,414 |
| Joyce | 10 | 5 | 0 | 5 | 11,321 |
| Lake St. John | 11 | 8 | 1 | 2 | 85,538 |
| Lisbon | 85 | 76 | 0 | 9 | 500,970 |
| Logansport | 10 | 0 | 10 | 0 | 63,395 |
| Monroe | 137 | 0 | 137 | 0 | 313,615 |
| Ora | 8 | 3 | 0 | 5 | 16,722 |
| Rodessa | 4 | 3 | 0 | 1 | 29,096 |
| Ruston | 6 | 6 | 0 | 0 | 54,882 |
| Sabine Lake | 10 | 8 | 0 | 2 | 57,403 |
| Sligo | 8 | 2 | 6 | 0 | 40,129 |
| Truxno | 6 | 2 | 0 | 4 | 13,501 |
| Tullos | 40 | 33 | 0 | 7 | 62,236 |
| Urania | 7 | 5 | 0 | 2 | 9,729 |
| Waskom | 4 | 2 | 2 | 0 | 22,832 |
| W. Catahoula Lake | 4 | 4 | 0 | 0 | 17,201 |
| Zwolle | 4 | 3 | 0 | 1 | 9,030 |
| Miscellaneous | 110 | 46 | 13 | 51 | 496,971 |
| Total | 1,342 | 918 | 192 | 232 | 3,900,797 |

### SOUTHERN LOUISIANA
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 75 | 52 | 1 | 22 | 666,141 |
| February | 76 | 51 | 3 | 22 | 636,560 |
| March | 90 | 61 | 1 | 28 | 729,202 |
| April | 68 | 44 | 2 | 22 | 567,725 |
| May | 74 | 45 | 1 | 28 | 670,288 |
| June | 92 | 57 | 3 | 32 | 796,302 |
| July | 76 | 42 | 3 | 31 | 686,971 |
| August | 63 | 43 | 0 | 20 | 608,486 |
| September | 83 | 51 | 3 | 29 | 702,959 |
| October | 70 | 51 | 2 | 17 | 627,867 |
| November | 68 | 46 | 0 | 22 | 584,729 |
| December | 88 | 54 | 0 | 34 | 746,819 |
| Total | 923 | 597 | 19 | 307 | 8,024,049 |

### SOUTHERN LOUISIANA
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 9 | 2 | 0 | 7 | 93,040 |
| February | 7 | 1 | 0 | 6 | 81,315 |
| March | 17 | 9 | 0 | 8 | 164,777 |
| April | 11 | 7 | 2 | 9 | 175,375 |
| May | 19 | 6 | 0 | 13 | 203,744 |
| June | 26 | 9 | 2 | 15 | 252,244 |
| July | 16 | 5 | 1 | 10 | 165,433 |
| August | 11 | 6 | 0 | 5 | 123,879 |
| September | 18 | 8 | 0 | 10 | 176,112 |
| October | 12 | 6 | 0 | 6 | 116,861 |
| November | 10 | 3 | 0 | 7 | 105,265 |
| December | 12 | 3 | 0 | 9 | 124,276 |
| Total | 175 | 65 | 5 | 105 | 1,782,321 |

### SOUTHERN LOUISIANA
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 66 | 50 | 1 | 15 | 573,101 |
| February | 69 | 50 | 3 | 16 | 555,245 |
| March | 73 | 52 | 1 | 20 | 564,425 |
| April | 50 | 37 | 0 | 13 | 392,350 |
| May | 55 | 39 | 1 | 15 | 466,544 |
| June | 66 | 48 | 1 | 17 | 544,058 |
| July | 60 | 37 | 2 | 21 | 521,538 |
| August | 52 | 37 | 0 | 15 | 484,607 |
| September | 65 | 43 | 3 | 19 | 526,847 |
| October | 58 | 45 | 2 | 11 | 511,006 |
| November | 58 | 43 | 0 | 15 | 479,464 |
| December | 76 | 51 | 0 | 25 | 622,543 |
| Total | 748 | 532 | 14 | 202 | 6,241,728 |

### SOUTHERN LOUISIANA
**Wildcat Completions by Parishes**

| Parish— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Acadia | 14 | 6 | 0 | 8 | 134,726 |
| Allen | 2 | 0 | 0 | 2 | 19,524 |
| Assumption | 1 | 0 | 0 | 1 | 13,224 |
| Avoyelles | 4 | 0 | 0 | 4 | 33,252 |
| Beauregard | 13 | 3 | 0 | 10 | 111,946 |
| Calcasieu | 10 | 2 | 0 | 8 | 73,894 |
| Cameron | 16 | 6 | 0 | 10 | 180,309 |
| E. Baton Rouge | 1 | 0 | 0 | 1 | 9,112 |
| Evangeline | 1 | 0 | 0 | 1 | 12,523 |
| Iberia | 7 | 4 | 0 | 3 | 85,039 |
| Iberville | 2 | 1 | 0 | 1 | 22,808 |
| Jefferson | 11 | 5 | 0 | 6 | 114,248 |
| Jefferson Davis | 4 | 0 | 0 | 4 | 41,991 |
| Lafourche | 15 | 8 | 0 | 7 | 150,143 |
| Livingston | 2 | 1 | 0 | 1 | 19,066 |
| Plaquemines | 16 | 7 | 1 | 8 | 167,224 |
| Pointe Coupee | 5 | 4 | 0 | 1 | 49,127 |
| Rapides | 1 | 1 | 0 | 0 | 10,223 |
| St. Bernard | 2 | 0 | 0 | 2 | 21,848 |
| St. Charles | 2 | 0 | 0 | 2 | 21,873 |
| St. Helena | 2 | 0 | 0 | 2 | 19,999 |
| St. James | 1 | 1 | 0 | 0 | 11,450 |
| St. John the Baptist | 1 | 0 | 0 | 1 | 10,268 |
| St. Landry | 2 | 1 | 0 | 1 | 20,107 |
| St. Martin | 5 | 3 | 1 | 1 | 60,797 |
| St. Mary | 6 | 0 | 0 | 6 | 64,873 |
| St. Tammany | 1 | 0 | 0 | 1 | 9,010 |
| Terrebonne | 15 | 10 | 2 | 3 | 152,698 |
| Vernon | 2 | 0 | 0 | 2 | 22,462 |
| Vermilion | 8 | 2 | 1 | 5 | 88,327 |
| Washington | 1 | 0 | 0 | 1 | 11,200 |
| W. Baton Rouge | 1 | 0 | 0 | 1 | 10,000 |
| W. Feliciana | 1 | 0 | 0 | 1 | 9,030 |
| Total | 175 | 65 | 5 | 105 | 1,782,321 |

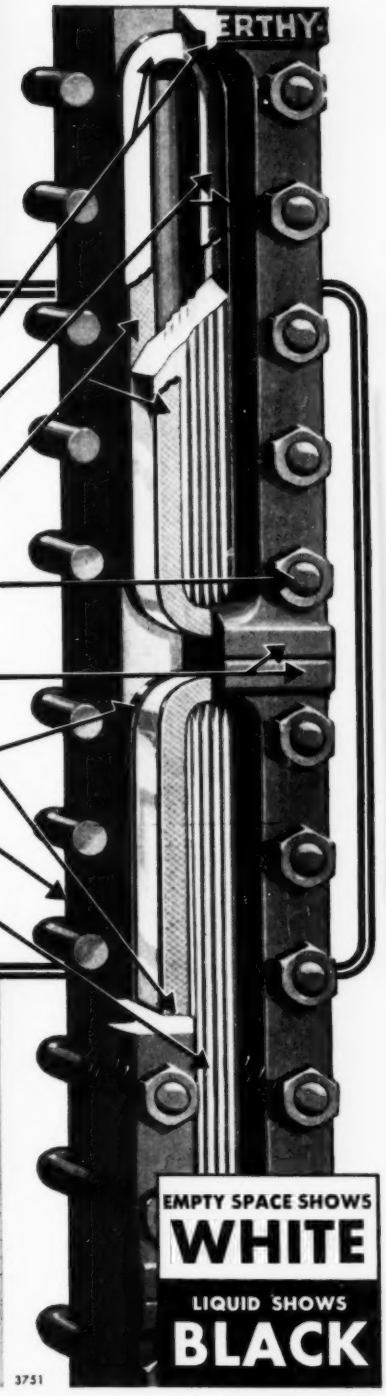
### SOUTHERN LOUISIANA
**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Abbeville | 3 | 2 | 0 | 1 | 23,656 |
| Anse La Butte | 17 | 11 | 0 | 6 | 70,705 |
| Avery Island | 7 | 6 | 0 | 1 | 65,332 |

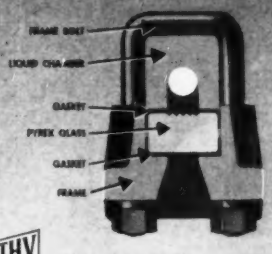
# only PENBERTHY *Reflex* LIQUID LEVEL GAGES *Have All These Features*

**Drop Forged Steel**

1. **PROTECTED GLASS.** Frame completely contains glass—no part exposed. Glass supports none of frame weight.
2. **UNIFORM GASKET PRESSURE** assured by precision finishing of retaining surfaces.
3. **EQUAL RESILIENCE ON BOTH SIDES OF GLASS** due to interchangeable gaskets which also prevent improper reassembly in the field.
4. **PERFECT GASKET JOINTS WITH MINIMUM BOLT TENSION** because misalignment of parts is impossible. This also eliminates frequent cause of glass breakage.
5. **DISTORTION PREVENTED** by reinforcing beam and scientific distribution of metal in frame. (Distortion is a serious cause of glass breakage.)
6. **GASKET BLOW-OUTS PREVENTED** by full metal backing of surface and periphery of both gaskets.
7. **RIGIDITY AND PERFECT ALIGNMENT** assured because liquid chamber is machined from solid block of temperature resistant steel heat treated to prevent warping.
8. **PYREX GLASS** is used exclusively because it has proved far superior in resistance to thermal shock and erosion.




**Penberthy Reflex Gages make reading of liquid level easy and unmistakable; empty space always shows white—liquid always shows black. They are made in any length desired and from various materials to successfully withstand corrosion, contamination and high temperature conditions. Conform with API—ASME standards.**




PENBERTHY PRODUCTS

**PENBERTHY INJECTOR COMPANY**

*Manufacturers of QUALITY PRODUCTS Since 1886*

**DETROIT 2, MICHIGAN** • *Canadian Plant* • *Windsor, Ontario*

3751

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Bancroft | 4 | 4 | 0 | 0 | 35,661 |
| Bay De Chene | 7 | 5 | 0 | 2 | 73,998 |
| Bay Marchand (Offshore) | 11 | 6 | 0 | 5 | 50,898 |
| Bay St. Elaine | 11 | 9 | 0 | 2 | 98,122 |
| Bayou Blue | 16 | 15 | 0 | 1 | 84,805 |
| Bayou Couba | 6 | 5 | 0 | 1 | 42,972 |
| Bayou Mallet | 8 | 7 | 0 | 1 | 69,714 |
| Belle Isle | 5 | 4 | 0 | 1 | 36,488 |
| Big Point | 3 | 3 | 0 | 0 | 22,267 |
| Black Bayou | 3 | 2 | 0 | 1 | 22,535 |
| Block 32 (Offshore) | 4 | 0 | 0 | 4 | 13,024 |
| Bully Camp | 4 | 2 | 0 | 2 | 32,607 |
| Caillou Island | 16 | 13 | 0 | 3 | 163,985 |
| Chacahoula | 7 | 6 | 1 | 0 | 73,356 |
| Charenton | 13 | 5 | 0 | 8 | 81,584 |
| Cote Blanche Bay | 3 | 2 | 0 | 1 | 16,904 |
| David Haas | 8 | 7 | 0 | 1 | 67,949 |
| Delta Duck Club | 3 | 1 | 0 | 2 | 23,755 |
| Delta Farms | 9 | 8 | 0 | 1 | 92,654 |
| Des Allemands | 6 | 4 | 0 | 2 | 57,581 |
| Dog Lake | 9 | 8 | 0 | 1 | 80,841 |
| Duck Lake | 3 | 2 | 0 | 1 | 37,508 |
| E. Longville | 5 | 2 | 0 | 3 | 43,754 |
| E. Moss Lake | 4 | 2 | 0 | 2 | 35,747 |
| E. Perkins | 6 | 6 | 0 | 0 | 44,217 |
| Edgerly | 4 | 3 | 0 | 1 | 36,097 |
| Egan | 5 | 4 | 0 | 1 | 52,632 |
| English Bayou | 4 | 3 | 1 | 0 | 25,323 |
| Fordoche | 5 | 4 | 0 | 1 | 43,613 |
| Four Isle Dome | 3 | 3 | 0 | 0 | 38,113 |
| Garden Island Bay | 5 | 5 | 0 | 0 | 29,984 |
| Golden Meadow | 38 | 34 | 0 | 4 | 268,530 |
| Grand Bay | 10 | 10 | 0 | 0 | 95,491 |
| Grand Isle, Blk. 18 (Offshore) | 4 | 3 | 0 | 1 | 35,801 |
| Horseshoe Bayou | 6 | 5 | 1 | 0 | 69,822 |
| Hurricane Creek | 12 | 12 | 0 | 0 | 95,869 |
| Iota | 3 | 1 | 0 | 2 | 27,500 |
| Iowa | 5 | 2 | 0 | 3 | 41,184 |
| Lafitte | 5 | 5 | 0 | 0 | 46,375 |
| Lake Fausse Point | 3 | 1 | 0 | 2 | 24,800 |
| Lake Monogoulois | 4 | 4 | 0 | 0 | 45,422 |
| Lake Pelto | 5 | 3 | 0 | 2 | 58,741 |
| Lake Washington | 5 | 2 | 0 | 3 | 53,425 |
| Leeville | 14 | 12 | 0 | 2 | 145,188 |
| Lockport | 5 | 2 | 0 | 3 | 38,053 |
| Main Pass Blk 69 (Offshore) | 7 | 4 | 0 | 3 | 38,282 |
| Marksville | 14 | 8 | 0 | 6 | 117,704 |
| Napoleonville | 3 | 0 | 0 | 3 | 20,696 |
| N. Cankton | 9 | 8 | 0 | 1 | 77,058 |
| N. Crowley | 9 | 8 | 0 | 1 | 60,139 |
| N. Tepetate | 5 | 4 | 0 | 1 | 44,677 |
| Paradis | 5 | 5 | 0 | 0 | 52,672 |
| Pecan Island | 5 | 4 | 0 | 1 | 59,281 |
| Pecan Lake | 3 | 2 | 0 | 1 | 34,334 |
| Perkins | 3 | 3 | 0 | 0 | 22,163 |
| Pine Prairie | 20 | 10 | 0 | 10 | 51,744 |
| Point a la Hache | 11 | 10 | 0 | 1 | 124,453 |
| Port Barre | 10 | 6 | 0 | 4 | 53,417 |
| Quarantine Bay | 6 | 5 | 1 | 0 | 61,802 |
| Raceland | 8 | 4 | 0 | 4 | 77,615 |
| Richie | 7 | 4 | 0 | 3 | 25,885 |
| St. Gabriel | 4 | 3 | 0 | 1 | 45,078 |
| St. Martinville | 7 | 7 | 0 | 0 | 35,838 |
| Section 28 | 16 | 12 | 0 | 4 | 145,021 |
| S. Jeanerette | 7 | 4 | 1 | 2 | 47,196 |
| Starks | 7 | 4 | 0 | 3 | 14,568 |
| Sulphur Mines | 4 | 4 | 0 | 0 | 17,608 |
| Sunshine | 5 | 5 | 0 | 0 | 52,057 |
| Tigre Lagoon | 8 | 6 | 1 | 1 | 92,457 |
| University | 19 | 17 | 0 | 2 | 176,347 |
| Vacherie | 5 | 4 | 0 | 1 | 36,336 |
| Valentine | 4 | 1 | 0 | 3 | 38,486 |
| Venice | 12 | 11 | 0 | 1 | 115,650 |
| Vinton | 8 | 6 | 1 | 1 | 51,318 |
| Week's Island | 21 | 13 | 0 | 8 | 218,216 |
| Welsh | 5 | 5 | 0 | 0 | 35,954 |
| W. Barataria | 5 | 2 | 0 | 3 | 49,763 |
| W. Bay | 4 | 4 | 0 | 0 | 40,858 |
| W. Bivens | 4 | 1 | 0 | 3 | 38,759 |
| W. Cote Blanche Bay | 7 | 7 | 0 | 0 | 68,123 |
| W. Hackberry | 6 | 6 | 0 | 0 | 52,962 |
| W. Tepetate | 10 | 5 | 0 | 5 | 85,618 |
| White Castle | 5 | 3 | 0 | 2 | 40,566 |
| Miscellaneous | 104 | 52 | 7 | 45 | 984,445 |
| Total | 748 | 532 | 14 | 202 | 6,241,728 |

**ARKANSAS**
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 13 | 4 | 0 | 9 | 64,771 |
| February | 20 | 15 | 0 | 5 | 109,764 |
| March | 29 | 16 | 0 | 13 | 117,842 |
| April | 28 | 17 | 1 | 10 | 112,255 |
| May | 24 | 15 | 0 | 9 | 87,109 |
| June | 32 | 20 | 1 | 11 | 127,246 |
| July | 34 | 19 | 0 | 15 | 139,307 |
| August | 26 | 9 | 0 | 17 | 116,574 |
| September | 35 | 10 | 0 | 25 | 130,219 |
| October | 30 | 17 | 1 | 12 | 109,255 |
| November | 33 | 20 | 0 | 13 | 111,680 |
| December | 18 | 9 | 0 | 9 | 56,833 |
| Total | 322 | 171 | 3 | 148 | 1,282,855 |

**ARKANSAS**
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 9 | 1 | 0 | 8 | 47,190 |
| February | 4 | 1 | 0 | 3 | 20,259 |
| March | 7 | 0 | 0 | 7 | 18,144 |
| April | 6 | 1 | 0 | 5 | 22,177 |
| May | 3 | 0 | 0 | 3 | 4,551 |
| June | 3 | 0 | 0 | 3 | 14,857 |
| July | 8 | 1 | 0 | 7 | 31,559 |
| August | 7 | 0 | 0 | 7 | 24,236 |
| September | 11 | 0 | 0 | 11 | 45,530 |
| October | 6 | 0 | 1 | 5 | 29,314 |
| November | 6 | 0 | 0 | 6 | 20,169 |
| December | 8 | 1 | 0 | 7 | 29,034 |
| Total | 78 | 5 | 1 | 72 | 307,020 |

**ARKANSAS**
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 4 | 3 | 0 | 1 | 17,581 |
| February | 16 | 14 | 0 | 2 | 89,505 |
| March | 22 | 16 | 0 | 6 | 99,698 |
| April | 22 | 16 | 1 | 5 | 90,078 |
| May | 21 | 15 | 0 | 6 | 82,558 |
| June | 29 | 20 | 1 | 8 | 112,389 |
| July | 26 | 18 | 0 | 8 | 107,748 |
| August | 19 | 9 | 0 | 10 | 92,338 |
| September | 24 | 10 | 0 | 14 | 84,689 |
| October | 24 | 17 | 0 | 7 | 79,941 |
| November | 27 | 20 | 0 | 7 | 91,511 |
| December | 10 | 8 | 0 | 2 | 27,799 |
| Total | 244 | 166 | 2 | 76 | 975,835 |

**ARKANSAS**
**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Arkansas | 1 | 0 | 0 | 1 | 4,183 |
| Bradley | 1 | 0 | 0 | 1 | 4,710 |
| Caldwell | 1 | 0 | 0 | 1 | 6,008 |
| Calhoun | 2 | 0 | 0 | 2 | 6,938 |
| Cleveland | 1 | 0 | 0 | 1 | 3,714 |
| Columbia | 8 | 3 | 0 | 5 | 42,118 |
| Conway | 1 | 0 | 0 | 1 | 1,585 |
| Drew | 2 | 0 | 0 | 2 | 8,470 |
| Franklin | 1 | 0 | 1 | 0 | 6,650 |
| Hempstead | 2 | 0 | 0 | 2 | 4,039 |
| Lafayette | 4 | 0 | 0 | 4 | 21,783 |
| Little River | 5 | 0 | 0 | 5 | 17,826 |
| Madison | 2 | 0 | 0 | 2 | 1,464 |
| Miller | 3 | 0 | 0 | 3 | 11,845 |
| Monroe | 1 | 0 | 0 | 1 | 3,010 |
| Nevada | 8 | 0 | 0 | 8 | 22,875 |
| Ouachita | 13 | 0 | 0 | 13 | 34,110 |
| Pike | 1 | 0 | 0 | 1 | 625 |
| St. Francis | 1 | 0 | 0 | 1 | 2,754 |
| Union | 19 | 1 | 0 | 18 | 90,721 |
| Webster | 1 | 1 | 0 | 0 | 11,592 |
| Total | 78 | 5 | 1 | 72 | 307,020 |

**ARKANSAS**
**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Atlanta | 6 | 2 | 0 | 4 | 49,856 |
| Bear Creek | 5 | 3 | 0 | 2 | 34,823 |
| Buckner | 5 | 5 | 0 | 0 | 26,212 |
| Cairo | 11 | 10 | 0 | 1 | 86,303 |
| Champagnolle | 5 | 4 | 0 | 1 | 15,477 |
| El Dorado | 3 | 2 | 0 | 1 | 7,419 |
| Cypress Lake | 3 | 1 | 0 | 2 | 13,382 |
| East McNeil | 6 | 3 | 0 | 3 | 21,350 |
| Hibank | 6 | 6 | 0 | 0 | 12,986 |
| Hillsboro | 6 | 3 | 0 | 3 | 17,425 |
| Lisbon | 3 | 1 | 0 | 2 | 6,433 |
| Loutre Creek | 5 | 0 | 0 | 5 | 39,135 |
| Magnolia | 6 | 6 | 0 | 0 | 44,505 |
| Pine Tree | 3 | 2 | 0 | 1 | 25,376 |
| Sandy Bend | 7 | 5 | 1 | 1 | 18,337 |
| Smackover | 18 | 17 | 0 | 1 | 46,926 |

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Stephens | 82 | 64 | 0 | 18 | 260,049 |
| Urbana | 7 | 6 | 0 | 1 | 19,156 |
| Village | 10 | 5 | 0 | 5 | 51,632 |
| Wesson | 22 | 11 | 0 | 11 | 67,365 |
| Miscellaneous | 25 | 10 | 1 | 14 | 111,688 |
| Total | 244 | 166 | 2 | 76 | 975,835 |

**MISSISSIPPI**
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 28 | 13 | 2 | 13 | 201,606 |
| February | 26 | 17 | 0 | 9 | 182,069 |
| March | 31 | 14 | 0 | 17 | 235,852 |
| April | 33 | 16 | 0 | 17 | 231,678 |
| May | 28 | 14 | 0 | 14 | 208,046 |
| June | 32 | 12 | 1 | 19 | 229,725 |
| July | 24 | 11 | 1 | 12 | 161,776 |
| August | 26 | 12 | 0 | 14 | 177,159 |
| September | 30 | 17 | 0 | 13 | 209,366 |
| October | 25 | 11 | 0 | 14 | 181,976 |
| November | 25 | 12 | 0 | 13 | 176,534 |
| December | 26 | 12 | 1 | 13 | 192,145 |
| Total | 334 | 161 | 5 | *168 | 2,387,932 |

*Incl. 1 service well.

**MISSISSIPPI**
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 9 | 0 | 1 | 8 | 66,135 |
| February | 5 | 1 | 0 | 4 | 44,799 |
| March | 13 | 1 | 0 | 12 | 89,331 |
| April | 9 | 1 | 0 | 8 | 62,951 |
| May | 10 | 1 | 0 | 9 | 63,378 |
| June | 12 | 0 | 0 | 12 | 73,029 |
| July | 7 | 0 | 0 | 7 | 45,668 |
| August | 9 | 0 | 0 | 9 | 62,914 |
| September | 11 | 1 | 0 | 10 | 78,658 |
| October | 11 | 2 | 0 | 9 | 88,322 |
| November | 8 | 0 | 0 | 8 | 54,803 |
| December | 11 | 1 | 0 | 10 | 80,257 |
| Total | 115 | 8 | 1 | 106 | 810,245 |

**MISSISSIPPI**
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 19 | 13 | 1 | 5 | 135,471 |
| February | 21 | 16 | 0 | 5 | 137,270 |
| March | 18 | 13 | 0 | 5 | 146,521 |
| April | 24 | 15 | 0 | 9 | 168,727 |
| May | 18 | 13 | 0 | 5 | 144,668 |
| June | 20 | 12 | 1 | 7 | 156,696 |
| July | 17 | 11 | 1 | 5 | 116,108 |
| August | 17 | 12 | 0 | 5 | 114,245 |
| September | 19 | 16 | 0 | 3 | 130,708 |
| October | 14 | 9 | 0 | 5 | 93,654 |
| November | 17 | 12 | 0 | 5 | 121,731 |
| December | 15 | 11 | 1 | 3 | 111,888 |
| Total | 219 | 153 | 4 | 62 | 1,577,687 |

**MISSISSIPPI**
**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Adams | 20 | 1 | 0 | 19 | 137,515 |
| Carroll | 1 | 0 | 0 | 1 | 3,581 |
| Clarke | 2 | 0 | 0 | 2 | 10,673 |
| Copiah | 1 | 0 | 0 | 1 | 10,341 |
| Covington | 1 | 0 | 0 | 1 | 9,610 |
| Forrest | 2 | 0 | 0 | 2 | 18,276 |
| Franklin | 9 | 2 | 0 | 7 | 85,660 |
| George | 1 | 0 | 0 | 1 | 8,507 |
| Greene | 5 | 1 | 0 | 4 | 42,993 |
| Grenada | 1 | 0 | 0 | 1 | 3,301 |
| Harrison | 1 | 0 | 0 | 1 | 7,891 |
| Hinds | 7 | 0 | 0 | 7 | 26,505 |
| Holmes | 1 | 0 | 0 | 1 | 6,313 |
| Humphreys | 1 | 0 | 0 | 1 | 5,008 |
| Issaquena | 2 | 0 | 0 | 2 | 11,883 |
| Itawamba | 2 | 0 | 0 | 2 | 4,361 |
| Jasper | 2 | 0 | 0 | 2 | 11,812 |
| Jefferson | 8 | 2 | 0 | 6 | 70,356 |
| Jones | 5 | 1 | 0 | 4 | 31,648 |
| Lamar | 2 | 0 | 0 | 2 | 17,830 |
| Lawrence | 2 | 0 | 0 | 2 | 21,188 |
| Lincoln | 1 | 0 | 0 | 1 | 10,660 |
| Madison | 5 | 0 | 0 | 5 | 25,527 |
| Marion | 2 | 0 | 1 | 1 | 20,526 |
| Noxebee | 2 | 0 | 0 | 2 | 7,088 |
| Perry | 2 | 0 | 0 | 2 | 17,333 |
| Pike | 2 | 0 | 0 | 2 | 22,198 |
| Rankin | 3 | 0 | 0 | 3 | 12,570 |
| Scott | 2 | 0 | 0 | 2 | 13,237 |
| Sharkey | 4 | 0 | 0 | 4 | 14,436 |
| Smith | 3 | 0 | 0 | 3 | 21,718 |
| Walthall | 2 | 0 | 0 | 2 | 21,102 |
| Warren | 1 | 0 | 0 | 1 | 4,937 |

. . . 350° HEAT

. . . 15,000 lbs. PRESSURE

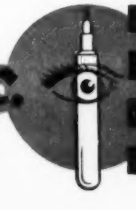
*With* RADIOACTIVITY WELL LOGGING *Instruments*

. . . combinations of extreme *temperatures* and *pressures*, frequently encountered in deep drilling, constitute standard operating conditions for the use of GAMMA RAY and NEUTRON Well Logging in the efficient completion, production and maintenance of wells.

Radioactivity well logging service is available from these experienced licensees.

**Well Surveys, Inc.**

TULSA, OKLAHOMA U.S.A.



LANE-WELLS COMPANY
UNITED STATES & CANADA

SEISMOGRAPH SERVICE CORP. of Delaware
MEXICO

GEOTECNICA, S. A.
BUENOS AIRES, ARGENTINA

PETRO-TECH SERVICE CO.
CARACAS, VENEZUELA

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Washington | 2 | 0 | 0 | 2 | 11,751 |
| Wayne | 3 | 0 | 0 | 3 | 19,769 |
| Wilkinson | 4 | 1 | 0 | 3 | 35,136 |
| Yazoo | 1 | 0 | 0 | 1 | 7,005 |
| Total | 115 | 8 | 1 | 106 | 810,245 |

### MISSISSIPPI

**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Baxterville | 19 | 14 | 3 | 2 | 166,431 |
| Brookhaven | 5 | 4 | 0 | 1 | 52,574 |
| Bude | 9 | 3 | 0 | 6 | 100,247 |
| Cranfield | 9 | 6 | 0 | 3 | 68,889 |
| Ellisile | 6 | 3 | 0 | 3 | 39,454 |
| Eucutta | 4 | 2 | 0 | 2 | 21,027 |
| Heidelberg-East | 9 | 8 | 0 | 1 | 45,686 |
| Heidelberg-West | 7 | 5 | 0 | 2 | 37,152 |
| Hub | 5 | 3 | 1 | 1 | 45,972 |
| LaGrange | 29 | 20 | 0 | 9 | 180,875 |
| LaGrange-South | 28 | 17 | 0 | 11 | 182,405 |
| Mallalieu | 22 | 15 | 0 | 7 | 231,391 |
| Oldenburg | 7 | 4 | 0 | 3 | 56,178 |
| Pine Ridge | 5 | 3 | 0 | 2 | 32,415 |
| Soso | 4 | 4 | 0 | 0 | 26,809 |
| Tinsley | 4 | 4 | 0 | 0 | 22,965 |
| Yellow Creek | 39 | 32 | 0 | 7 | 197,145 |
| Miscellaneous | 8 | 6 | 0 | 2 | 70,072 |
| Total | 219 | 153 | 4 | 62 | 1,577,687 |

### ALABAMA

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| February | 1 | 0 | 0 | 1 | 15,659 |
| March | 1 | 0 | 0 | 1 | 4,295 |
| April | 3 | 0 | 0 | 3 | 9,567 |
| May | 1 | 0 | 0 | 1 | 3,508 |
| July | 3 | 0 | 0 | 3 | 17,667 |
| August | 2 | 0 | 0 | 2 | 13,508 |
| September | 1 | 1 | 0 | 0 | 3,282 |
| October | 3 | 1 | 0 | 2 | 10,716 |
| December | 4 | 2 | 0 | 2 | 16,281 |
| Total | 19 | 4 | 0 | 15 | 94,483 |

### ALABAMA

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| February | 1 | 0 | 0 | 1 | 15,659 |
| March | 1 | 0 | 0 | 1 | 4,295 |
| April | 3 | 0 | 0 | 3 | 9,567 |
| May | 1 | 0 | 0 | 1 | 3,508 |
| July | 3 | 0 | 0 | 3 | 17,667 |
| August | 2 | 0 | 0 | 2 | 13,508 |
| October | 1 | 0 | 0 | 1 | 4,025 |
| December | 2 | 0 | 0 | 2 | 9,657 |
| Total | 14 | 0 | 0 | 14 | 77,886 |

### ALABAMA

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| September | 1 | 1 | 0 | 0 | 3,282 |
| October | 2 | 1 | 0 | 1 | 6,691 |
| December | 2 | 2 | 0 | 0 | 6,624 |
| Total | 5 | 4 | 0 | 1 | 16,597 |

### ALABAMA

**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Clarke | 2 | 0 | 0 | 2 | 11,073 |
| Choctaw | 3 | 0 | 0 | 3 | 11,05[illegible] |
| Covington | 2 | 0 | 0 | 2 | 8,809 |
| Escambia | 1 | 0 | 0 | 1 | 6,658 |
| Franklin | 2 | 0 | 0 | 2 | 4,484 |
| Houston | 1 | 0 | 0 | 1 | 8,100 |
| Pike | 1 | 0 | 0 | 1 | 3,508 |
| Washington | 2 | 0 | 0 | 2 | 24,164 |
| Total | 14 | 0 | 0 | 14 | 77,886 |

### ALABAMA

**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Gilbertown | 5 | 4 | 0 | 1 | 16,597 |
| Total | 5 | 4 | 0 | 1 | 16,597 |

### FLORIDA

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 4 | 1 | 0 | 3 | 35,270 |
| February | 1 | 0 | 0 | 1 | 5,424 |
| March | 5 | 1 | 0 | 4 | 41,338 |
| April | 1 | 0 | 0 | 1 | 3,845 |
| June | 2 | 1 | 0 | 1 | 14,627 |
| July | 1 | 0 | 0 | 1 | 2,929 |
| August | 5 | 1 | 0 | 4 | 36,365 |
| October | 3 | 0 | 0 | 3 | 23,868 |
| December | 2 | 0 | 0 | 2 | 17,037 |
| Total | 24 | 4 | 0 | 20 | 180,703 |

### FLORIDA

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 3 | 0 | 0 | 3 | 23,698 |
| February | 1 | 0 | 0 | 1 | 5,424 |
| March | 5 | 1 | 0 | 4 | 41,338 |
| April | 1 | 0 | 0 | 1 | 3,845 |
| June | 1 | 0 | 0 | 1 | 3,051 |
| July | 1 | 0 | 0 | 1 | 2,929 |
| August | 3 | 0 | 0 | 3 | 12,576 |
| October | 2 | 0 | 0 | 2 | 12,071 |
| December | 2 | 0 | 0 | 2 | 17,037 |
| Total | 19 | 1 | 0 | 18 | 121,969 |

### FLORIDA

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 1 | 1 | 0 | 0 | 11,572 |
| June | 1 | 1 | 0 | 0 | 11,576 |
| August | 2 | 1 | 0 | 1 | 23,789 |
| October | 1 | 0 | 0 | 1 | 11,797 |
| Total | 5 | 3 | 0 | 2 | 58,734 |

### FLORIDA

**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Collier | 3 | 1 | 0 | 2 | 35,278 |
| Columbia | 3 | 0 | 0 | 3 | 10,808 |
| Dade | 1 | 0 | 0 | 1 | 11,520 |
| Dixie | 1 | 0 | 0 | 1 | 5,103 |
| Jackson | 1 | 0 | 0 | 1 | 9,243 |
| Jefferson | 1 | 0 | 0 | 1 | 7,913 |
| Lafayette | 2 | 0 | 0 | 2 | 8,019 |
| Levy | 1 | 0 | 0 | 1 | 4,609 |
| Marion | 1 | 0 | 0 | 1 | 3,845 |
| Monroe | 1 | 0 | 0 | 1 | 7,559 |
| Putnam | 1 | 0 | 0 | 1 | 3,892 |
| Suwanee | 1 | 0 | 0 | 1 | 3,139 |
| Taylor | 1 | 0 | 0 | 1 | 5,517 |
| Volusia | 1 | 0 | 0 | 1 | 5,424 |
| Total | 19 | 1 | 0 | 18 | 121,969 |

### FLORIDA

**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Sunniland | 5 | 3 | 0 | 2 | 58,734 |
| Total | 5 | 3 | 0 | 2 | 58,734 |

### GEORGIA

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| March | 2 | 0 | 0 | 2 | 3,690 |
| April | 1 | 0 | 0 | 1 | 3,845 |
| May | 1 | 0 | 0 | 1 | 4,182 |
| September | 2 | 0 | 0 | 2 | 3,064 |
| Total | 6 | 0 | 0 | 6 | 14,781 |

### GEORGIA

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| March | 2 | 0 | 0 | 2 | 3,690 |
| April | 1 | 0 | 0 | 1 | 3,845 |
| May | 1 | 0 | 0 | 1 | 4,182 |
| September | 2 | 0 | 0 | 2 | 3,064 |
| Total | 6 | 0 | 0 | 6 | 14,781 |

### GEORGIA

**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Brooks | 2 | 0 | 0 | 2 | 3,981 |
| Calhoun | 1 | 0 | 0 | 1 | 1,365 |
| Echols | 1 | 0 | 0 | 1 | 4,182 |
| Houston | 1 | 0 | 0 | 1 | 1,699 |
| Seminole | 1 | 0 | 0 | 1 | 3,554 |
| Total | 6 | 0 | 0 | 6 | 14,781 |

### TENNESSEE

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 7 | 1 | 0 | 6 | 7,923 |
| February | 4 | 1 | 0 | 3 | 4,015 |
| March | 2 | 0 | 0 | 2 | 1,782 |
| April | 3 | 1 | 0 | 2 | 3,199 |
| May | 5 | 1 | 0 | 4 | 5,119 |
| June | 1 | 0 | 0 | 1 | 700 |
| August | 4 | 0 | 0 | 4 | 1,383 |
| September | 5 | 2 | 0 | 3 | 2,129 |
| November | 4 | 2 | 0 | 2 | 2,008 |
| Total | 35 | 8 | 0 | 27 | 28,258 |

### TENNESSEE

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 5 | 1 | 0 | 4 | 5,573 |
| February | 4 | 1 | 0 | 3 | 4,015 |
| March | 2 | 0 | 0 | 2 | 1,782 |
| April | 3 | 1 | 0 | 2 | 3,199 |
| May | 4 | 1 | 0 | 3 | 3,847 |
| June | 1 | 0 | 0 | 1 | 700 |
| August | 4 | 0 | 0 | 4 | 1,383 |
| September | 4 | 1 | 0 | 3 | 1,089 |
| November | 2 | 0 | 0 | 2 | 914 |
| Total | 29 | 5 | 0 | 24 | 22,502 |

### TENNESSEE

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 2 | 0 | 0 | 2 | 2,350 |
| May | 1 | 0 | 0 | 1 | 1,272 |
| September | 1 | 1 | 0 | 0 | 1,040 |
| November | 2 | 2 | 0 | 0 | 1,094 |
| Total | 6 | 3 | 0 | 3 | 5,756 |

### VIRGINIA

**Wildcat Completions by Months***

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| April | 1 | 0 | 1 | 0 | 3,870 |
| October | 1 | 0 | 0 | 1 | 7,401 |
| November | 1 | 0 | 0 | 1 | 9,340 |
| Total | 3 | 0 | 0 | 3 | 20,611 |

*No development completions.

### WEST VIRGINIA

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 45 | 10 | 23 | 12 | 137,273 |
| February | 35 | 6 | 27 | 2 | 92,344 |
| March | 46 | 9 | 35 | 2 | 129,912 |
| April | 38 | 1 | 29 | 8 | 126,304 |
| May | 33 | 2 | 28 | 3 | 99,939 |
| June | 42 | 6 | 32 | 4 | 138,446 |
| July | 36 | 7 | 26 | 3 | 105,014 |
| August | 38 | 4 | 25 | 9 | 102,082 |
| September | 55 | 13 | 33 | 9 | 173,855 |
| October | 34 | 6 | 22 | 6 | 90,858 |
| November | 64 | 11 | 35 | 18 | 171,986 |
| December | 52 | 12 | 29 | 11 | 120,423 |
| Total | 518 | 87 | 344 | 87 | 1,488,436 |

### WEST VIRGINIA

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 3 | 0 | 1 | 2 | 22,162 |
| March | 3 | 0 | 3 | 0 | 10,291 |
| April | 3 | 0 | 0 | 3 | 19,663 |
| June | 4 | 1 | 2 | 1 | 23,340 |
| August | 2 | 0 | 1 | 1 | 10,580 |
| September | 6 | 0 | 4 | 2 | 34,668 |
| November | 3 | 0 | 1 | 2 | 15,267 |
| Total | 24 | 1 | 12 | 11 | 135,971 |

### WEST VIRGINIA

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 42 | 10 | 22 | 10 | 115,111 |
| February | 35 | 6 | 27 | 2 | 92,344 |
| March | 43 | 9 | 32 | 2 | 119,621 |
| April | 35 | 1 | 29 | 5 | 106,641 |
| May | 33 | 2 | 28 | 3 | 99,939 |
| June | 38 | 5 | 30 | 3 | 115,106 |
| July | 36 | 7 | 26 | 3 | 105,014 |
| August | 36 | 4 | 24 | 8 | 91,502 |
| September | 49 | 13 | 29 | 7 | 139,187 |
| October | 34 | 6 | 22 | 6 | 90,858 |
| November | 61 | 11 | 34 | 16 | 156,719 |
| December | 52 | 12 | 29 | 11 | 120,423 |
| Total | 494 | 86 | 332 | 76 | 1,352,465 |

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*with*

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Completely dependable water service for general plant use—including storage of cooled water and other process applications—combines with ever-present fire protection to create immediate value in your Pittsburgh-Des Moines Elevated Steel Tank. Year-after-year durability and low maintenance costs are P-DM values that steadily enhance your investment. *May we give you the details?*

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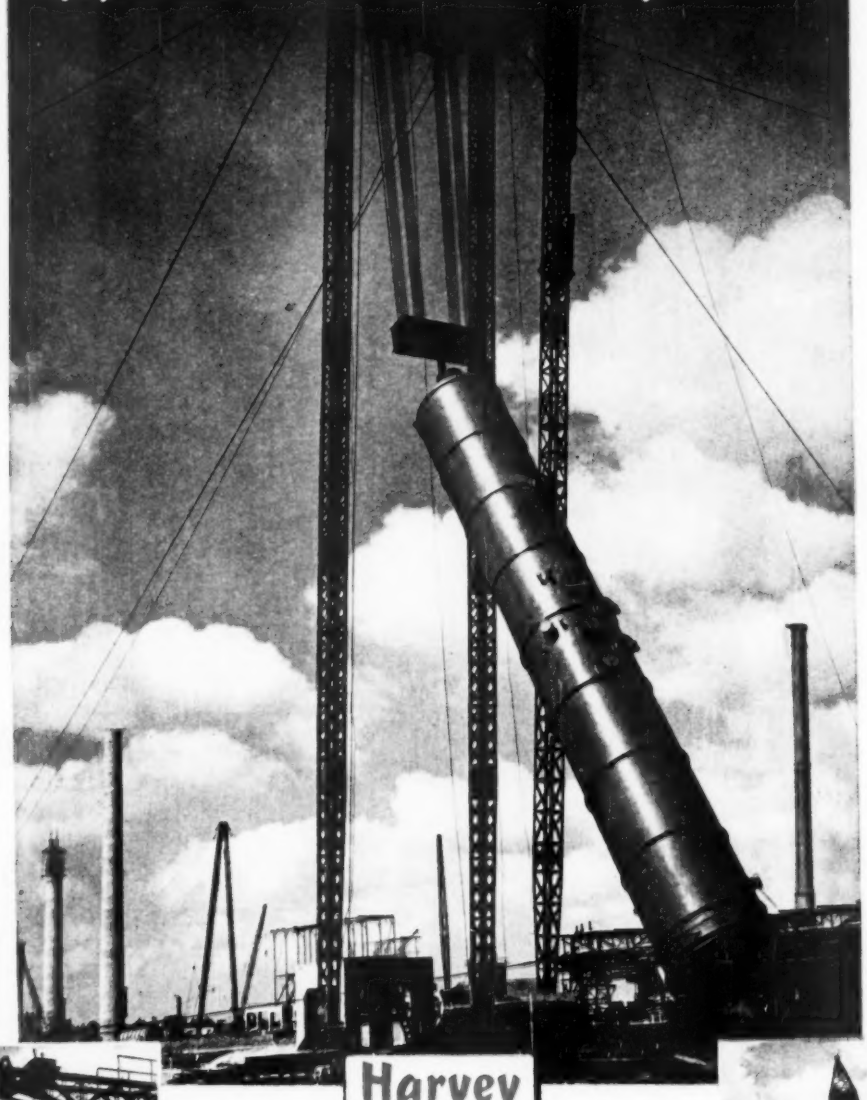
# up goes another Harvey Fractionating Column !



**Harvey**

This Column, fabricated by Harveys, was lowered into the Thames near their London works, towed across the North Sea, lifted from the water at Pernis, near Rotterdam, and soon became an active part of the Royal Dutch Shell Group's New Oil Refinery. Harveys undertake all forms of heavy constructional work for the Oil and many other Industries.

Send for Catalogue OG750

G. A. Harvey & Co. (London) Ltd. Woolwich Road, London, S.E.7

## OKLAHOMA

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 323 | 197 | 10 | 116 | 1,214,694 |
| February | 199 | 115 | 6 | 78 | 833,105 |
| March | 320 | 189 | 17 | 114 | 1,158,467 |
| April | 408 | 239 | 31 | 138 | 1,418,681 |
| May | 402 | 211 | 27 | 164 | 1,417,010 |
| June | 398 | 208 | 26 | 164 | 1,324,823 |
| July | 368 | 201 | 6 | 161 | 1,380,639 |
| August | 418 | 232 | 22 | 164 | 1,467,935 |
| September | 346 | 209 | 16 | 121 | 1,282,078 |
| October | 355 | 206 | 9 | 140 | 1,097,970 |
| November | 393 | 232 | 19 | 142 | 1,321,684 |
| December | 422 | 244 | 24 | 154 | 1,421,712 |
| Total | 4,352 | 2,483 | 213* | 1,656 | 15,338,798 |

*Includes 44 service wells.

## OKLAHOMA

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 73 | 22 | 1 | 50 | 346,697 |
| February | 40 | 7 | 3 | 30 | 193,167 |
| March | 57 | 12 | 2 | 43 | 230,127 |
| April | 65 | 17 | 0 | 48 | 266,595 |
| May | 84 | 15 | 3 | 66 | 294,569 |
| June | 72 | 13 | 2 | 57 | 277,860 |
| July | 79 | 14 | 0 | 65 | 306,040 |
| August | 82 | 13 | 0 | 69 | 347,445 |
| September | 51 | 5 | 4 | 42 | 196,528 |
| October | 61 | 18 | 1 | 42 | 209,415 |
| November | 64 | 13 | 1 | 50 | 252,391 |
| December | 76 | 14 | 1 | 61 | 295,227 |
| Total | 804 | 163 | 18 | 623 | 3,216,061 |

## OKLAHOMA

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 250 | 175 | 9 | 66 | 867,997 |
| February | 159 | 108 | 3 | 48 | 639,938 |
| March | 263 | 177 | 15 | 71 | 928,340 |
| April | 343 | 222 | 31 | 90 | 1,152,086 |
| May | 318 | 196 | 24 | 98 | 1,122,441 |
| June | 326 | 195 | 24 | 107 | 1,046,963 |
| July | 289 | 187 | 6 | 96 | 1,074,599 |
| August | 336 | 219 | 22 | 95 | 1,120,490 |
| September | 295 | 204 | 12 | 79 | 1,085,550 |
| October | 294 | 188 | 8 | 98 | 888,555 |
| November | 329 | 219 | 18 | 92 | 1,069,293 |
| December | 346 | 230 | 23 | 93 | 1,126,385 |
| Total | 3,548 | 2,320 | 195 | 1,033 | 12,122,737 |

## OKLAHOMA

**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Atoka | 5 | 0 | 0 | 5 | 13,962 |
| Beckham | 5 | 0 | 1 | 4 | 43,417 |
| Caddo | 6 | 2 | 1 | 3 | 36,689 |
| Carter | 31 | 9 | 1 | 21 | 145,031 |
| Cleveland | 6 | 2 | 0 | 4 | 33,383 |
| Comanche | 18 | 3 | 0 | 15 | 15,713 |
| Cotton | 69 | 3 | 0 | 66 | 139,544 |
| Creek | 21 | 1 | 1 | 19 | 65,582 |
| Garfield | 7 | 1 | 0 | 6 | 39,071 |
| Garvin | 60 | 20 | 0 | 40 | 280,853 |
| Grady | 10 | 3 | 0 | 7 | 76,376 |
| Grant | 13 | 3 | 0 | 10 | 68,987 |
| Hughes | 32 | 7 | 4 | 21 | 106,382 |
| Jefferson | 24 | 1 | 0 | 23 | 62,485 |
| Kay | 17 | 0 | 1 | 16 | 62,991 |
| Kiowa | 19 | 1 | 0 | 18 | 27,095 |
| Lincoln | 60 | 8 | 2 | 50 | 255,552 |
| Logan | 22 | 1 | 0 | 21 | 125,162 |
| Love | 8 | 1 | 0 | 7 | 41,378 |
| Major | 12 | 10 | 0 | 2 | 84,218 |
| McClain | 9 | 3 | 0 | 6 | 90,508 |
| Murray | 10 | 1 | 0 | 9 | 21,095 |
| Noble | 22 | 7 | 0 | 15 | 104,798 |
| Okfuskee | 37 | 10 | 2 | 25 | 132,138 |
| Oklahoma | 16 | 6 | 1 | 9 | 98,097 |
| Okmulgee | 13 | 2 | 0 | 11 | 29,627 |
| Osage | 17 | 8 | 0 | 9 | 40,326 |
| Pawnee | 12 | 1 | 0 | 11 | 40,330 |
| Payne | 34 | 9 | 0 | 25 | 143,023 |
| Pittsburg | 7 | 0 | 1 | 6 | 20,872 |
| Pontotoc | 17 | 4 | 1 | 12 | 38,307 |
| Pottawatomie | 29 | 9 | 0 | 20 | 147,537 |
| Seminole | 39 | 10 | 1 | 28 | 134,032 |
| Stephens | 46 | 11 | 1 | 34 | 214,924 |
| Tillman | 5 | 0 | 0 | 5 | 12,604 |
| Miscellaneous | 46 | 6 | 0 | 40 | 223,972 |
| Total | 804 | 163 | 18 | 623 | 3,216,061 |

## OKLAHOMA

**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footaeg |
|---|---|---|---|---|---|
| Ada & E. | 15 | 6 | 1 | 8 | 18,068 |
| Alabama, SW. & W. | 10 | 4 | 0 | 6 | 31,537 |
| Allen | 56 | 34 | 4 | 18 | 127,043 |
| Alma, No. | 34 | 32 | 0 | 2 | 183,948 |
| Altus & E. | 5 | 1 | 0 | 4 | 7,767 |
| Antioch, SE & SW. | 50 | 42 | 2 | 6 | 336,998 |
| Asphaltum | 5 | 0 | 4 | 1 | 10,156 |
| Avoca & SW. | 9 | 8 | 0 | 1 | 37,855 |
| Bald Hill | 15 | 7 | 4 | 4 | 25,631 |
| Barnsdall & So. & W. | 5 | 1 | 0 | 4 | 9,063 |
| Bayou | 108 | 102 | 0 | 6 | 415,184 |
| Bebee & SE. | 60 | 49 | 1 | 10 | 142,008 |
| Beggs, No. & So. | 6 | 2 | 0 | 4 | 14,119 |
| Benjamin | 11 | 7 | 3 | 1 | 37,753 |
| Bethel, W. | 6 | 4 | 0 | 2 | 19,801 |
| Big Bend | 5 | 0 | 0 | 5 | 14,170 |
| Big Horse | 6 | 0 | 0 | 6 | 6,507 |
| Big Pond | 5 | 2 | 0 | 3 | 12,973 |
| Blackwell, & E. & So. | 12 | 6 | 0 | 6 | 40,386 |
| Blakely, No. & SE. | 7 | 6 | 0 | 1 | 25,823 |
| Bowlegs | 9 | 4 | 0 | 5 | 37,614 |
| Bowring, & NE. & W. | 18 | 14 | 1 | 3 | 17,254 |
| Brock, & W. | 40 | 29 | 0 | 11 | 151,064 |
| Burbank | 11 | 10 | 0 | 1 | 32,072 |
| Cache Creek | 28 | 17 | 0 | 11 | 38,271 |
| Camp & NW. | 13 | 10 | 0 | 3 | 85,883 |
| Cary | 9 | 3 | 3 | 3 | 27,904 |
| Castle, E. & SW. | 25 | 17 | 0 | 8 | 83,928 |
| Cement, & E. & W. | 74 | 53 | 7 | 14 | 250,452 |
| Ceres, So. | 11 | 7 | 0 | 4 | 50,195 |


RED DEVIL

"DIA-HARD" LINERS

*For high pressure abrasive service*

Forged in one piece from highest quality alloy steel. The deep HIGH-CARBON wear resistant case of maximum hardness and uniformity is obtainable only by our SPECIAL "DIA-HARD" PROCESS, greatly excelling all other known methods for longer life liners. The bore is PRECISION HONED, and ACCURATE OUTSIDE DIMENSIONS insure a perfect working fit with liner packing assembly and pump cylinder for positive leakproof sealing. Write for Catalog No. P-120.

TELL-TALE LINER PACKING ASSEMBLIES

*Gives warning before damage*

Tell-Tale Liner Packing Assembly consists of two "DIA-TEX" oil and heat resistant sealing rings separated by a precision made steel, corrosion-resistant lantern ring. Internal leakage is detected instantly in slush pumps through "tell-tale holes" before costly fluid cuts occur to cylinder walls. There is either a Tell-Tale Liner Packing Assembly or a "DIA-TEX" Sealing Ring available for all makes of slush pumps. Write for Catalog No. P-121.

LINER PULLERS

*Save valuable time and labor*

The Red Devil Liner Puller is a strong, heavy duty, dependable tool capable of pulling the most obstinate liner. Its operation is simple. There are no pins, connecting links or other small parts to bend, shear, break or become lost.

The "Universal Type" Puller (as illustrated) is designed for slush pumps. The "Expanding Grip Type" is designed for pulling thin wall-driven tube type liners, as used in small pumps. Write for Catalog No. P-122.

**See Composite Catalog . . .** For more detailed information on Red Devil Products, see the Composite Catalog or write for special price catalogs noted above. Red Devil products are available through your supply store.

**OIL WELL MANUFACTURING CORP.**
6002 Alameda St., Los Angeles 1, Calif.

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Coffee Creek | 12 | 11 | 0 | 1 | 71,356 |
| Comanche Lake & So. | 7 | 1 | 1 | 5 | 19,228 |
| Conservation | 5 | 0 | 2 | 3 | 11,485 |
| Cowan | 6 | 3 | 0 | 3 | 20,514 |
| Cruce | 7 | 6 | 0 | 1 | 7,399 |
| Cushing & E. | 30 | 16 | 4 | 10 | 74,890 |
| Davenport & So. & SE. & W. | 38 | 31 | 0 | 7 | 132,648 |
| Deep Fork | 7 | 2 | 0 | 5 | 25,086 |
| Denver, SE. | 12 | 11 | 0 | 1 | 70,179 |
| Dill & NE. | 8 | 3 | 0 | 5 | 29,373 |
| Dilworth | 8 | 4 | 0 | 4 | 25,687 |
| Earlsboro & E. & No. & NW. | 10 | 6 | 0 | 4 | 35,500 |
| Edmond, NE. & W. | 14 | 9 | 1 | 4 | 91,114 |
| Elk City | 18 | 16 | 0 | 2 | 189,534 |
| Elmore, NE. | 42 | 34 | 0 | 8 | 281,860 |
| Empire-Comanche | 24 | 9 | 0 | 15 | 63,872 |
| Evansville, E. & NW. | 5 | 2 | 0 | 3 | 26,831 |
| Fourdee | 33 | 32 | 0 | 1 | 158,018 |
| Ft. Sill & NW. | 8 | 2 | 1 | 5 | 8,425 |
| Garrett | 5 | 1 | 0 | 4 | 20,365 |
| G. I. Joe | 7 | 3 | 0 | 4 | 12,400 |
| Glenn | 35 | 28 | 0 | 7 | 55,630 |
| Happy Valley | 34 | 29 | 1 | 4 | 116,279 |
| Hawkins, NW. | 8 | 5 | 0 | 3 | 11,693 |
| Hazel | 10 | 7 | 0 | 3 | 27,006 |
| Healdton | 36 | 24 | 0 | 12 | 53,987 |
| Hewitt & NW. | 15 | 13 | 0 | 2 | 49,827 |
| Hickory Creek | 8 | 4 | 0 | 4 | 8,212 |
| Hobart, NE. | 10 | 3 | 0 | 7 | 20,730 |
| Holdenville, E. & W. | 37 | 23 | 5 | 9 | 71,655 |
| Hoover & No. & NE. & NW. | 79 | 44 | 4 | 31 | 164,008 |
| Hugoton | 90 | 0 | 88 | 2 | 253,848 |
| Iconium, | 5 | 3 | 0 | 2 | 26,215 |
| Ingalls & E. & No. NE. & NW. | 5 | 1 | 0 | 4 | 18,304 |
| Jennings & So. & SE. & SW. | 8 | 7 | 0 | 1 | 25,667 |
| Jones | 35 | 30 | 0 | 5 | 157,455 |
| Katie | 25 | 19 | 0 | 6 | 168,545 |
| Kellyville & W. | 7 | 2 | 0 | 5 | 17,412 |
| Keystone & E. & No. | 19 | 14 | 0 | 5 | 39,423 |
| Knox | 48 | 34 | 6 | 8 | 184,095 |
| Komalty | 10 | 4 | 1 | 5 | 6,966 |
| Konawa & NW. & So. & SW. | 14 | 4 | 0 | 10 | 34,723 |
| Lawton | 131 | 57 | 1 | 73 | 44,044 |
| Lindsay, E. & No. & NE. & SE. | 54 | 50 | 0 | 4 | 507,632 |
| Little River & No. | 12 | 7 | 0 | 5 | 39,670 |
| Loco | 21 | 10 | 0 | 11 | 16,753 |
| Lone Grove, SW. | 5 | 3 | 0 | 2 | 20,245 |
| Mannford & No. | 8 | 4 | 0 | 4 | 20,938 |
| Maramec & No. & SE. | 29 | 21 | 0 | 8 | 89,028 |
| March & No. | 28 | 22 | 0 | 6 | 82,445 |
| Marshall | 7 | 4 | 0 | 3 | 42,358 |
| Maysville, So. & SE. & SW. | 42 | 35 | 0 | 7 | 311,900 |
| Mehan & NW. & So. | 17 | 10 | 2 | 5 | 67,682 |
| Moral, NE. | 5 | 4 | 0 | 1 | 23,515 |
| Morris | 6 | 2 | 1 | 3 | 9,341 |
| Morse & NE. & NW. | 8 | 3 | 0 | 5 | 22,308 |
| Mt. Hope, NW. | 11 | 7 | 1 | 3 | 41,737 |
| Munger & SE. | 19 | 15 | 1 | 3 | 118,017 |
| Newcastle, SE. | 5 | 5 | 0 | 0 | 44,620 |
| New England | 17 | 13 | 0 | 4 | 39,424 |
| New Hope, SE. | 40 | 37 | 0 | 3 | 289,374 |
| Norfolk & No. & SW. & W. | 35 | 33 | 0 | 2 | 100,446 |
| Oakman & W. | 7 | 4 | 1 | 2 | 9,180 |
| Oklahoma City | 12 | 10 | 0 | 2 | 76,155 |
| Okmulgee | 6 | 2 | 0 | 4 | 9,863 |
| Olive & So. | 6 | 3 | 0 | 3 | 14,518 |
| Olympic | 10 | 0 | 0 | 10 | 15,250 |
| Osage City | 13 | 7 | 0 | 6 | 16,871 |
| Otoe City & E. | 6 | 3 | 0 | 3 | 22,689 |
| Page | 6 | 6 | 0 | 0 | 13,563 |
| Palacine & So. | 39 | 31 | 0 | 8 | 105,837 |
| Panther Creek & SW. | 26 | 25 | 0 | 1 | 201,179 |
| Perry & NW. | 13 | 8 | 0 | 5 | 55,400 |
| Pershing & E. | 8 | 6 | 0 | 2 | 16,097 |
| Polo & SE. | 8 | 6 | 0 | 2 | 39,221 |
| Quapaw | 7 | 0 | 3 | 4 | 13,029 |
| Ramsey & NE. & SE. | 14 | 8 | 0 | 6 | 63,723 |
| Randlett & SW. | 29 | 8 | 0 | 21 | 48,345 |
| Remington | 6 | 2 | 0 | 4 | 17,807 |
| Rich Valley | 7 | 4 | 0 | 3 | 41,517 |
| Ringling, No. | 7 | 5 | 0 | 2 | 19,791 |
| Ringwood & W. | 7 | 7 | 0 | 0 | 48,158 |
| Robberson & SE. | 24 | 19 | 0 | 5 | 39,674 |
| Seay | 14 | 13 | 0 | 1 | 11,143 |
| Seminole & W. | 9 | 3 | 0 | 6 | 35,750 |
| Sheldon & SE. | 5 | 4 | 0 | 1 | 14,133 |
| Sholem Alechem & W. | 143 | 127 | 1 | 15 | 610,827 |
| Skellyville | 6 | 4 | 0 | 2 | 21,425 |
| Slick & So. & W. | 11 | 8 | 0 | 3 | 30,957 |
| Soldier Creek | 9 | 6 | 0 | 3 | 14,068 |
| Spencer | 6 | 2 | 0 | 4 | 10,702 |
| Spring | 8 | 4 | 0 | 4 | 18,499 |
| Steadman, No. | 11 | 4 | 2 | 5 | 13,184 |
| St. Louis & No. | 16 | 10 | 0 | 6 | 66,305 |
| Stockton | 5 | 2 | 0 | 3 | 35,138 |
| Sylvian & E. | 9 | 7 | 0 | 2 | 32,813 |
| Tatums | 113 | 96 | 0 | 17 | 218,741 |
| Tiger Flats | 6 | 3 | 0 | 3 | 11,545 |
| Transco & E. & NW. | 5 | 2 | 1 | 2 | 10,199 |
| Uncas, W. | 7 | 3 | 0 | 4 | 23,427 |
| Union Point | 5 | 2 | 0 | 3 | 26,379 |
| Velma & W. | 135 | 105 | 1 | 29 | 555,715 |
| Victory Hill | 5 | 4 | 0 | 1 | 17,035 |
| Walters & W. | 19 | 8 | 1 | 10 | 39,656 |
| Wanette & E. & SW. | 6 | 4 | 0 | 2 | 21,531 |
| Wayne, SW. | 6 | 5 | 0 | 1 | 44,405 |
| Webb & No. | 16 | 9 | 1 | 6 | 72,085 |
| Weleetka, So. & SW. | 6 | 2 | 0 | 4 | 16,889 |
| Wetumka, So. & SE. | 22 | 12 | 7 | 3 | 72,475 |
| Wewoka, No. & NE. | 18 | 11 | 0 | 7 | 47,860 |
| Wheeler | 37 | 26 | 0 | 11 | 35,464 |
| Wilzetta | 7 | 5 | 0 | 2 | 23,025 |
| Witcher | 45 | 41 | 0 | 4 | 280,164 |
| Wofford & So. | 7 | 2 | 0 | 5 | 12,863 |
| Yale-Quay | 15 | 9 | 0 | 6 | 44,814 |
| Miscellaneous | 543 | 294 | 27 | 222 | 1,567,306 |
| Total | 3,548 | 2,320 | 195 | 1,033 | 12,122,737 |

**KANSAS**

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 244 | 127 | 16 | 101 | 791,808 |
| February | 210 | 120 | 12 | 78 | 680,372 |
| March | 205 | 108 | 10 | 87 | 665,661 |
| April | 238 | 137 | 8 | 93 | 773,764 |
| May | 304 | 170 | 9 | 125 | 998,943 |
| June | 285 | 148 | 30 | 107 | 900,282 |
| July | 317 | 136 | 69 | 112 | 975,707 |
| August | 314 | 165 | 51 | 98 | 993,077 |
| September | 316 | 151 | 47 | 118 | 975,164 |
| October | 283 | 128 | 54 | 101 | 859,672 |
| November | 331 | 143 | 61 | 127 | 1,046,143 |
| December | 340 | 150 | 52 | 138 | 1,054,388 |
| Total | 3,387 | 1,683 | 419 | *1,285 | 10,714,981 |

*Includes 31 service wells.

**KANSAS**

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 43 | 7 | 1 | 35 | 152,438 |
| February | 32 | 5 | 1 | 26 | 116,153 |
| March | 35 | 7 | 0 | 28 | 117,360 |
| April | 30 | 8 | 0 | 22 | 109,085 |
| May | 53 | 6 | 0 | 47 | 179,307 |
| June | 53 | 11 | 3 | 39 | 183,016 |
| July | 39 | 5 | 0 | 34 | 132,380 |
| August | 54 | 12 | 1 | 41 | 191,588 |
| September | 50 | 9 | 1 | 40 | 165,270 |
| October | 36 | 7 | 1 | 28 | 120,694 |
| November | 45 | 5 | 1 | 39 | 148,932 |
| December | 52 | 7 | 0 | 45 | 166,242 |
| Total | 522 | 89 | 9 | 424 | 1,782,465 |

**KANSAS**

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 201 | 120 | 15 | 66 | 639,370 |
| February | 178 | 115 | 11 | 52 | 564,219 |
| March | 170 | 101 | 10 | 59 | 548,301 |
| April | 208 | 129 | 8 | 71 | 664,679 |
| May | 251 | 164 | 9 | 78 | 819,636 |
| June | 232 | 137 | 27 | 68 | 717,266 |
| July | 278 | 131 | 69 | 78 | 843,327 |
| August | 260 | 153 | 50 | 57 | 801,489 |
| September | 266 | 142 | 46 | 78 | 809,894 |
| October | 247 | 121 | 53 | 73 | 738,978 |
| November | 286 | 138 | 60 | 88 | 897,211 |
| December | 288 | 143 | 52 | 93 | 888,146 |
| Total | 2,865 | 1,594 | 410 | 861 | 8,932,516 |

**KANSAS**

**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Barber | 6 | 1 | 0 | 5 | 33,002 |
| Barton | 29 | 6 | 0 | 23 | 184,085 |
| Butler | 40 | 8 | 0 | 32 | 114,175 |
| Chase | 5 | 0 | 0 | 5 | 13,838 |
| Coffey | 3 | 1 | 0 | 2 | 5,766 |
| Cowley | 10 | 1 | 1 | 8 | 30,711 |
| Ellis | 40 | 8 | 0 | 32 | 147,784 |
| Ellsworth | 3 | 1 | 0 | 2 | 9,919 |
| Graham | 19 | 3 | 0 | 16 | 73,552 |
| Greenwood | 12 | 1 | 0 | 11 | 24,345 |
| Harper | 6 | 1 | 0 | 5 | 29,323 |
| Harvey | 5 | 0 | 2 | 3 | 17,573 |
| Lyon | 11 | 0 | 0 | 11 | 30,551 |
| McPherson | 11 | 2 | 0 | 9 | 38,369 |
| Marion | 15 | 1 | 0 | 14 | 40,011 |
| Morris | 7 | 1 | 0 | 6 | 17,163 |
| Nemaha | 4 | 0 | 0 | 4 | 9,000 |
| Osborne | 3 | 0 | 0 | 3 | 10,632 |
| Pawnee | 10 | 2 | 0 | 8 | 38,207 |
| Pratt | 9 | 1 | 0 | 8 | 40,549 |
| Reno | 6 | 1 | 0 | 5 | 23,108 |
| Rice | 23 | 5 | 0 | 18 | 79,723 |
| Rooks | 54 | 8 | 0 | 46 | 194,999 |
| Russell | 32 | 11 | 0 | 21 | 105,006 |
| Sedgwick | 13 | 1 | 0 | 12 | 43,860 |
| Stafford | 36 | 11 | 0 | 25 | 120,730 |
| Sumner | 13 | 1 | 0 | 12 | 51,110 |
| Wabaunsee | 14 | 0 | 0 | 14 | 45,718 |
| Woodson | 9 | 1 | 0 | 8 | 13,877 |
| Miscellaneous | 74 | 12 | 6 | 56 | 195,779 |
| Total | 522 | 89 | 9 | 424 | 1,782,465 |

**KANSAS**

**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Abbyville | 12 | 10 | 0 | 2 | 42,490 |
| Ainsworth, S. | 8 | 4 | 0 | 4 | 26,961 |
| Ash Creek | 6 | 5 | 0 | 1 | 22,992 |
| Atherton | 9 | 7 | 0 | 2 | 29,536 |
| Augusta & N. | 36 | 28 | 0 | 8 | 88,276 |
| Barry & E. & SE. | 10 | 5 | 0 | 5 | 35,170 |
| Bartholomew & North | 7 | 5 | 0 | 2 | 23,685 |
| Batesville | 8 | 3 | 0 | 5 | 12,058 |
| Beaver & No. & NW. & So. | 22 | 17 | 0 | 5 | 70,188 |
| Bemis-Shutts | 22 | 13 | 0 | 9 | 78,661 |
| Berland | 50 | 44 | 0 | 6 | 193,350 |
| Big Creek | 22 | 19 | 0 | 3 | 70,111 |
| Bloomer | 8 | 6 | 0 | 2 | 26,245 |
| Boyd | 7 | 5 | 0 | 2 | 24,234 |
| Bryant & SE. | 30 | 20 | 0 | 10 | 99,205 |
| Burnett & NW & SW. | 23 | 20 | 0 | 3 | 82,446 |
| Burrton & NE. | 42 | 34 | 0 | 8 | 141,557 |
| Carmi | 11 | 8 | 1 | 2 | 47,482 |
| Carroll & SW. | 10 | 6 | 0 | 4 | 34,219 |
| Catherine & NW. | 13 | 11 | 0 | 2 | 46,492 |
| Chance | 9 | 9 | 0 | 0 | 39,858 |
| Chandler | 10 | 6 | 0 | 4 | 35,163 |
| Chase | 89 | 57 | 0 | 32 | 291,580 |
| Combs & NE. | 6 | 1 | 0 | 5 | 17,189 |
| Davis Ranch | 7 | 6 | 0 | 1 | 22,812 |
| Dopita | 14 | 11 | 0 | 3 | 48,011 |
| Drach & NW. & W. | 14 | 6 | 0 | 8 | 52,400 |
| Dubuque | 7 | 5 | 0 | 2 | 22,969 |
| Dunaway | 16 | 11 | 0 | 5 | 29,702 |
| Elbing & No. | 7 | 2 | 0 | 5 | 17,204 |
| El Dorado | 70 | 62 | 0 | 8 | 171,257 |
| Eureka | 33 | 26 | 0 | 7 | 64,647 |
| Eveleigh | 15 | 9 | 0 | 6 | 50,405 |
| Fairport | 23 | 18 | 0 | 5 | 75,762 |
| Fairview & No. | 11 | 7 | 0 | 4 | 32,073 |
| Fischer & NW. | 13 | 7 | 0 | 6 | 47,517 |
| Forest Hill & North | 9 | 5 | 0 | 4 | 29,680 |
| Gorham | 10 | 6 | 0 | 4 | 32,658 |
| Gra-Rock | 7 | 3 | 0 | 4 | 27,610 |
| Greenwich | 6 | 1 | 0 | 5 | 18,809 |
| Hall-Gurney | 90 | 59 | 0 | 31 | 271,683 |
| Hamilton | 12 | 6 | 0 | 6 | 21,918 |
| Hammer & No. | 24 | 19 | 0 | 5 | 81,473 |
| Hayden | 8 | 4 | 0 | 4 | 28,248 |
| Hazlett & No. | 8 | 7 | 0 | 1 | 19,785 |

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HOUSTON 1, TEXAS

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# REED ROLLER BIT COMPANY

HOUSTON 1, TEXAS

THE MARK OF QUALITY

NEW YORK BUENOS AIRES LONDON

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Hickory Creek | 8 | 6 | 0 | 2 | 22,188 |
| Hiss, SE. | 10 | 5 | 0 | 5 | 35,771 |
| Huffstutter | 7 | 7 | 0 | 0 | 24,547 |
| Hugoton | 392 | 0 | 391 | 1 | 1,021,236 |
| Jelinek | 10 | 8 | 0 | 2 | 35,943 |
| Koblitz | 8 | 5 | 0 | 3 | 29,776 |
| Kraft-Prusa & NE. | 52 | 40 | 0 | 12 | 174,367 |
| Kramer-Stern | 8 | 4 | 0 | 4 | 23,767 |
| Krueger | 17 | 14 | 0 | 3 | 60,619 |
| Laton | 12 | 6 | 0 | 6 | 40,622 |
| Laudick | 6 | 5 | 0 | 1 | 20,111 |
| Lorraine | 8 | 6 | 0 | 2 | 25,814 |
| Lost Springs & SE. | 19 | 11 | 0 | 8 | 46,100 |
| McHale | 7 | 6 | 0 | 1 | 24,863 |
| McPherson | 14 | 8 | 0 | 6 | 41,731 |
| Marchand, W. | 9 | 8 | 0 | 1 | 30,674 |
| Marcotte & No. | 8 | 4 | 0 | 4 | 30,466 |
| Max | 51 | 31 | 0 | 20 | 176,849 |
| Merle | 13 | 7 | 0 | 6 | 49,167 |
| Morel | 22 | 17 | 0 | 5 | 82,821 |
| Morlan | 6 | 4 | 0 | 2 | 22,686 |
| Northampton | 14 | 10 | 0 | 4 | 43,645 |
| Nunn | 7 | 4 | 2 | 1 | 26,814 |
| Nyra | 11 | 8 | 0 | 3 | 40,600 |
| Orth & W. | 12 | 6 | 0 | 6 | 39,159 |
| Otis-Albert | 13 | 10 | 0 | 3 | 46,384 |
| Padgett | 7 | 5 | 1 | 1 | 23,867 |
| Palco | 17 | 8 | 0 | 9 | 66,302 |
| Parker & NW. | 8 | 6 | 0 | 2 | 26,779 |
| Pawnee Rock | 12 | 9 | 0 | 3 | 45,914 |
| Potwin & So. | 15 | 6 | 0 | 9 | 40,203 |
| Quincy | 9 | 3 | 0 | 6 | 14,258 |
| Ray | 28 | 28 | 0 | 0 | 101,828 |
| Raymond | 22 | 11 | 0 | 11 | 64,330 |
| Reece | 20 | 16 | 0 | 4 | 41,669 |
| Ringwald | 7 | 6 | 0 | 1 | 22,229 |
| Ritz-Canton | 9 | 6 | 0 | 3 | 25,666 |
| Riverview | 9 | 6 | 0 | 3 | 32,707 |
| Robbins | 6 | 6 | 0 | 0 | 18,521 |
| Rock | 8 | 6 | 0 | 2 | 23,001 |
| Rothgarn & E. | 11 | 5 | 0 | 6 | 39,465 |
| Russell & E. | 22 | 12 | 0 | 10 | 65,749 |
| Ryan & SE. | 13 | 11 | 0 | 2 | 49,071 |
| Salter | 14 | 11 | 0 | 3 | 41,830 |
| Schoenchen | 11 | 7 | 0 | 4 | 39,723 |
| Seeley-Wick | 11 | 8 | 0 | 3 | 22,085 |
| Silica & So. | 59 | 40 | 1 | 18 | 195,006 |
| Skinner | 8 | 5 | 0 | 3 | 35,707 |
| St. John & Inst. | 6 | 3 | 0 | 3 | 23,551 |
| Stoltenberg | 25 | 13 | 0 | 12 | 84,490 |
| Sunny Valley | 15 | 9 | 0 | 6 | 51,972 |
| Towanda | 11 | 7 | 0 | 4 | 28,849 |
| Trapp | 76 | 53 | 0 | 23 | 252,145 |
| Twin Mounds | 6 | 3 | 0 | 3 | 17,400 |
| Virgil & No. | 23 | 18 | 0 | 5 | 40,088 |
| Walter | 6 | 3 | 0 | 3 | 22,141 |
| Welch & No. & W. | 13 | 8 | 0 | 5 | 45,082 |
| Wenger | 12 | 6 | 0 | 6 | 33,722 |
| Westhusin | 18 | 15 | 0 | 3 | 61,978 |
| Wherry & No. | 20 | 7 | 0 | 13 | 66,559 |
| White Cotton | 8 | 7 | 0 | 1 | 23,627 |
| Whitewater | 6 | 5 | 0 | 1 | 15,853 |
| Winterscheid | 87 | 69 | 0 | 18 | 151,847 |
| Workman & SE. | 21 | 16 | 0 | 5 | 72,167 |
| Zyba, SW. | 15 | 8 | 1 | 6 | 58,846 |
| Miscellaneous | 553 | 260 | 13 | 280 | 1,883,798 |
| Total | 2,865 | 1,594 | 410 | 861 | 8,932,516 |

### NEBRASKA

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| March | 1 | 0 | 0 | 1 | 2,525 |
| April | 6 | 0 | 0 | 6 | 21,445 |
| July | 6 | 4 | 0 | 2 | 19,312 |
| August | 2 | 0 | 0 | 2 | 9,077 |
| September | 2 | 0 | 0 | 2 | 7,759 |
| October | 2 | 2 | 0 | 0 | 8,787 |
| November | 8 | 4 | 0 | 4 | 29,920 |
| Total | 27 | 10 | 0 | 17 | 98,825 |

### NEBRASKA

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| March | 1 | 0 | 0 | 1 | 2,525 |
| April | 6 | 0 | 0 | 6 | 21,445 |
| July | 2 | 1 | 0 | 1 | 7,099 |
| August | 2 | 0 | 0 | 2 | 9,077 |
| September | 2 | 0 | 0 | 2 | 7,759 |
| October | 1 | 1 | 0 | 0 | 4,425 |
| November | 4 | 1 | 0 | 3 | 15,785 |
| Total | 18 | 3 | 0 | 15 | 68,115 |

### NEBRASKA

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| July | 4 | 3 | 0 | 1 | 12,213 |
| October | 1 | 1 | 0 | 0 | 4,362 |
| November | 4 | 3 | 0 | 1 | 14,135 |
| Total | 9 | 7 | 0 | 2 | 30,710 |

### MISSOURI

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 1 | 0 | 1 | 0 | 515 |
| March | 1 | 0 | 1 | 0 | 433 |
| April | 3 | 0 | 2 | 1 | 1,351 |
| May | 2 | 0 | 2 | 0 | 578 |
| July | 5 | 0 | 0 | 5 | 2,968 |
| August | 2 | 2 | 0 | 0 | 938 |
| September | 1 | 0 | 0 | 1 | 810 |
| October | 4 | 0 | 0 | 4 | 1,915 |
| November | 3 | 0 | 0 | 3 | 1,392 |
| Total | 22 | 2 | 6 | 14 | 10,900 |

### MISSOURI

**Wildcat Completions by Months**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| April | 1 | 0 | 0 | 1 | 325 |
| July | 4 | 0 | 0 | 4 | 2,425 |
| September | 1 | 0 | 0 | 1 | 810 |
| October | 4 | 0 | 0 | 4 | 1,915 |
| November | 3 | 0 | 0 | 3 | 1,392 |
| Total | 13 | 0 | 0 | 13 | 6,867 |

### MISSOURI

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 1 | 0 | 1 | 0 | 515 |
| March | 1 | 0 | 1 | 0 | 433 |
| April | 2 | 0 | 2 | 0 | 1,026 |
| May | 2 | 0 | 2 | 0 | 578 |
| July | 1 | 0 | 0 | 1 | 543 |
| August | 2 | 2 | 0 | 0 | 938 |
| Total | 9 | 2 | 6 | 1 | 4,033 |

### CALIFORNIA

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 215 | 164 | 1 | 50 | 821,759 |
| February | 208 | 159 | 1 | 48 | 793,402 |
| March | 213 | 172 | 3 | 38 | 883,440 |
| April | 222 | 171 | 1 | 50 | 818,621 |
| May | 244 | 198 | 1 | 45 | 967,301 |
| June | 243 | 188 | 5 | 50 | 1,129,675 |
| July | 188 | 144 | 2 | 42 | 846,837 |
| August | 220 | 159 | 3 | 58 | 1,016,303 |
| September | 191 | 132 | 6 | 53 | 831,737 |
| October | 216 | 152 | 9 | 55 | 888,451 |
| November | 206 | 161 | 6 | 39 | 827,061 |
| December | 146 | 114 | 2 | 30 | 618,654 |
| Total | 2,512 | 1,914 | 40 | 558 | 10,443,241 |

### CALIFORNIA

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 44 | 3 | 0 | 41 | 182,670 |
| February | 49 | 4 | 1 | 44 | 145,552 |
| March | 39 | 4 | 2 | 33 | 143,688 |
| April | 42 | 2 | 0 | 40 | 148,952 |
| May | 43 | 5 | 0 | 38 | 164,676 |
| June | 52 | 5 | 3 | 44 | 210,007 |
| July | 31 | 0 | 1 | 30 | 107,543 |
| August | 51 | 1 | 0 | 50 | 212,271 |
| September | 43 | 5 | 0 | 38 | 200,713 |
| October | 42 | 1 | 1 | 40 | 177,692 |
| November | 32 | 3 | 0 | 29 | 116,984 |
| December | 19 | 0 | 0 | 19 | 88,465 |
| Total | 487 | 33 | 8 | 446 | 1,899,213 |

### CALIFORNIA

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 171 | 161 | 1 | 9 | 639,089 |
| February | 159 | 155 | 0 | 4 | 647,850 |
| March | 174 | 168 | 1 | 5 | 739,752 |
| April | 180 | 169 | 1 | 10 | 669,669 |
| May | 201 | 193 | 1 | 7 | 802,625 |
| June | 191 | 183 | 2 | 6 | 919,668 |
| July | 157 | 144 | 1 | 12 | 739,294 |
| August | 169 | 158 | 3 | 8 | 804,032 |
| September | 148 | 127 | 6 | 15 | 631,024 |
| October | 174 | 151 | 8 | 15 | 710,759 |
| November | 174 | 158 | 6 | 10 | 710,077 |
| December | 127 | 114 | 2 | 11 | 530,189 |
| Total | 2,025 | 1,881 | 32 | 112 | 8,544,028 |

### CALIFORNIA

**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Colusa | 2 | 0 | 0 | 2 | 10,090 |
| Fresno | 27 | 2 | 0 | 25 | 185,319 |
| Kern | 209 | 15 | 3 | 191 | 729,850 |
| Kings | 4 | 0 | 0 | 4 | 30,141 |
| Los Angeles | 42 | 3 | 0 | 39 | 157,369 |
| Monterey | 27 | 4 | 0 | 23 | 76,836 |
| Orange | 16 | 0 | 0 | 16 | 94,366 |
| San Benito | 8 | 0 | 0 | 8 | 10,379 |
| San Bernardino | 4 | 1 | 0 | 3 | 12,649 |
| San Joaquin | 4 | 0 | 1 | 3 | 21,883 |
| San Louis Obispo | 56 | 2 | 0 | 54 | 190,086 |
| Santa Barbara | 33 | 4 | 0 | 29 | 130,657 |
| Solano | 3 | 0 | 1 | 2 | 17,310 |
| Tehama | 3 | 0 | 1 | 2 | 3,805 |
| Tulare | 5 | 0 | 0 | 5 | 20,997 |
| Ventura | 24 | 2 | 0 | 22 | 137,619 |
| Yolo | 6 | 0 | 1 | 5 | 18,127 |
| Miscellaneous | 14 | 0 | 1 | 13 | 51,730 |
| Total | 487 | 33 | 8 | 446 | 1,899,213 |

### CALIFORNIA

**Development Completions by Fields**

COASTAL DISTRICT—

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Bardsdale | 22 | 18 | 0 | 4 | 94,475 |
| Cat Canyon | 26 | 23 | 0 | 3 | 154,941 |
| Ojai | 7 | 7 | 0 | 0 | 26,746 |
| Orcutt | 13 | 12 | 0 | 1 | 45,411 |
| Padre Canyon | 7 | 7 | 0 | 0 | 54,749 |
| Rincon | 20 | 20 | 0 | 0 | 102,425 |
| San Miguelito | 13 | 13 | 0 | 0 | 98,139 |
| Santa Paula | 10 | 8 | 0 | 2 | 27,547 |
| S. Mountain | 34 | 33 | 0 | 1 | 162,139 |
| Ventura Ave. | 65 | 64 | 0 | 1 | 642,047 |
| Miscellaneous | 47 | 32 | 6 | 9 | 205,014 |
| Total | 264 | 237 | 6 | 21 | 1,613,633 |

### CALIFORNIA

**Development Completions by Fields**

SAN JOAQUIN VALLEY—

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Coalinga | 44 | 43 | 0 | 1 | 87,714 |
| Coles Levee | 10 | 9 | 0 | 1 | 96,034 |
| Edison | 55 | 54 | 0 | 1 | 199,928 |
| Elk Hills | 49 | 49 | 0 | 10 | 310,631 |
| Fruitvale | 29 | 29 | 0 | 0 | 117,850 |
| Gosford | 16 | 14 | 0 | 2 | 131,509 |
| Guijarral Hills | 51 | 51 | 0 | 0 | 427,386 |
| Jacalitos | 10 | 9 | 0 | 1 | 38,494 |
| Kern Bluff | 48 | 41 | 0 | 7 | 56,437 |
| Kern River | 57 | 55 | 0 | 2 | 59,480 |
| Midway-Sunset | 88 | 82 | 0 | 6 | 245,401 |
| Mountain View | 17 | 14 | 0 | 3 | 97,871 |
| Paloma | 21 | 19 | 0 | 2 | 233,826 |
| Raisin City | 19 | 14 | 0 | 5 | 100,946 |
| Russell Ranch | 87 | 83 | 0 | 4 | 301,281 |
| San Ardo | 39 | 35 | 0 | 4 | 90,294 |
| S. Belridge | 95 | 92 | 0 | 3 | 125,844 |
| S. Cuyama | 54 | 52 | 0 | 2 | 232,951 |
| Tejon Hills | 46 | 32 | 0 | 14 | 30,566 |
| Miscellaneous | 115 | 79 | 24 | 12 | 476,470 |
| Total | 950 | 856 | 24 | 70 | 3,460,913 |

### CALIFORNIA

**Development Completions by Fields**

LOS ANGELES BASIN—

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Aliso Canyon | 10 | 8 | 2 | 0 | 81,143 |
| Brea-Olinda | 24 | 24 | 0 | 0 | 143,726 |
| Coyote East | 15 | 14 | 0 | 1 | 65,558 |
| Coyote West | 15 | 14 | 0 | 1 | 71,637 |
| Dominguez | 15 | 14 | 0 | 1 | 112,127 |
| Huntington Beach | 101 | 100 | 0 | 1 | 518,424 |
| Inglewood | 18 | 18 | 0 | 0 | 53,398 |
| Long Beach | 44 | 42 | 0 | 2 | 370,696 |
| Montebello | 12 | 11 | 0 | 1 | 55,549 |
| Placerita-Newhall | 219 | 216 | 0 | 3 | 390,343 |
| Potrero | 10 | 9 | 0 | 1 | 105,302 |
| Ramona | 16 | 15 | 0 | 1 | 63,583 |
| Richfield | 22 | 20 | 0 | 2 | 92,691 |
| Rosecrans-Athens | 17 | 17 | 0 | 0 | 147,616 |
| Santa Fe Springs | 11 | 11 | 0 | 0 | 66,723 |
| West Newport | 10 | 5 | 0 | 5 | 34,036 |
| Wilmington | 202 | 202 | 0 | 0 | 814,858 |
| Miscellaneous | 50 | 48 | 0 | 2 | 282,072 |
| Total | 811 | 788 | 2 | 21 | 3,469,482 |

### MONTANA

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 17 | 9 | 4 | 4 | 44,177 |
| February | 10 | 6 | 2 | 2 | 33,731 |
| March | 18 | 11 | 2 | 5 | 33,679 |
| April | 29 | 15 | 7 | 7 | 81,237 |
| May | 21 | 9 | 7 | 5 | 54,389 |
| June | 36 | 14 | 5 | 17 | 63,832 |
| July | 23 | 10 | 8 | 5 | 59,144 |
| August | 37 | 14 | 8 | 15 | 70,027 |
| September | 32 | 16 | 5 | 11 | 64,872 |
| October | 17 | 10 | 2 | 5 | 42,678 |
| November | 24 | 13 | 2 | 9 | 62,031 |
| December | 15 | 11 | 2 | 2 | 39,806 |
| Total | 279 | 138 | 54 | 87 | 649,603 |

### MONTANA

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 5 | 1 | 1 | 3 | 16,576 |
| February | 2 | 0 | 0 | 2 | 13,935 |
| March | 1 | 0 | 0 | 1 | 601 |
| April | 2 | 0 | 0 | 2 | 2,962 |
| May | 3 | 0 | 0 | 3 | 15,714 |
| June | 6 | 0 | 0 | 6 | 12,736 |
| July | 3 | 1 | 1 | 1 | 13,929 |
| August | 8 | 1 | 0 | 7 | 24,182 |
| September | 5 | 1 | 0 | 4 | 12,219 |
| October | 3 | 1 | 0 | 2 | 11,011 |
| November | 4 | 0 | 0 | 4 | 17,683 |
| December | 3 | 1 | 0 | 2 | 15,363 |
| Total | 45 | 6 | 2 | 37 | 156,911 |

### MONTANA

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 12 | 8 | 3 | 1 | 27,601 |
| February | 8 | 6 | 2 | 0 | 19,796 |
| March | 17 | 11 | 2 | 4 | 33,078 |
| April | 27 | 15 | 7 | 5 | 78,275 |
| May | 18 | 9 | 7 | 2 | 39,673 |
| June | 30 | 14 | 5 | 11 | 51,096 |
| July | 20 | 9 | 7 | 4 | 45,215 |
| August | 29 | 13 | 8 | 8 | 45,845 |
| September | 27 | 15 | 5 | 7 | 52,653 |
| October | 14 | 9 | 2 | 3 | 31,667 |
| November | 20 | 13 | 2 | 5 | 44,348 |
| December | 12 | 10 | 2 | 0 | 24,443 |
| Total | 234 | 132 | 52 | 50 | 492,692 |

### MONTANA

**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Big Horn | 1 | 0 | 0 | 1 | 11,519 |
| Blaine | 1 | 1 | 0 | 0 | 3,586 |
| Carbon | 5 | 1 | 1 | 3 | 15,957 |
| Carter | 4 | 0 | 0 | 4 | 15,162 |
| Chouteau | 3 | 0 | 0 | 3 | 4,180 |
| Gallatin | 1 | 0 | 0 | 1 | 2,115 |
| Garfield | 1 | 0 | 0 | 1 | 9,018 |
| Glacier | 2 | 1 | 0 | 1 | 6,405 |
| Golden Valley | 2 | 1 | 1 | 0 | 6,700 |
| Hill | 3 | 0 | 0 | 3 | 11,607 |
| Judith Basin | 1 | 0 | 0 | 1 | 3,356 |
| Liberty | 2 | 0 | 0 | 2 | 4,673 |
| Musselshell | 7 | 1 | 0 | 6 | 15,076 |
| Petroleum | 2 | 0 | 0 | 2 | 6,398 |
| Phillips | 1 | 0 | 0 | 1 | 5,894 |
| Pondera | 2 | 0 | 0 | 2 | 5,291 |
| Rosebud | 4 | 1 | 0 | 3 | 15,670 |
| Teton | 2 | 0 | 0 | 2 | 8,174 |
| Valley | 1 | 0 | 0 | 1 | 6,130 |
| Total | 45 | 6 | 2 | 37 | 156,911 |

### MONTANA

**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Big Wall | 7 | 6 | 0 | 1 | 21,097 |
| Bowdoin | 27 | 0 | 27 | 0 | 23,240 |
| Bowes | 2 | 0 | 2 | 0 | 2,377 |
| Cat Creek | 14 | 5 | 0 | 9 | 26,420 |
| Cat Creek, W | 1 | 1 | 0 | 0 | 1,944 |
| Cedar Creek | 7 | 0 | 6 | 1 | 8,284 |
| Conrad-Midway | 2 | 0 | 0 | 2 | 4,419 |
| Cut Bank | 22 | 11 | 8 | 3 | 62,308 |
| Dry Creek | 1 | 0 | 1 | 0 | 4,993 |
| Elk Basin | 4 | 4 | 0 | 0 | 23,173 |
| Elk Basin, NW | 1 | 1 | 0 | 0 | 3,365 |
| Jack Creek | 3 | 0 | 0 | 3 | 2,124 |
| Kevin-Sunburst | 97 | 75 | 7 | 15 | 162,320 |
| Melstone | 10 | 4 | 0 | 6 | 47,051 |
| Pondera | 18 | 16 | 0 | 2 | 35,776 |
| Ragged Point | 1 | 0 | 0 | 1 | 6,017 |
| Rattlesnake Butte | 1 | 0 | 0 | 1 | 4,672 |
| Reagan Nose | 10 | 8 | 0 | 2 | 38,806 |
| Whitlash | 4 | 1 | 1 | 2 | 9,634 |
| Woman's Pocket | 2 | 0 | 0 | 2 | 4,672 |
| Total | 234 | 132 | 52 | 50 | 492,692 |

### WASHINGTON

**Wildcat Completions* by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| July | 1 | 0 | 0 | 1 | 3,805 |
| September | 1 | 0 | 0 | 1 | 4,330 |
| Total | 2 | 0 | 0 | 2 | 8,135 |

*No development completions.

### WYOMING

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 48 | 30 | 0 | 18 | 187,291 |
| February | 33 | 20 | 0 | 13 | 154,373 |
| March | 48 | 28 | 1 | 19 | 257,784 |
| April | 56 | 31 | 2 | 23 | 309,630 |
| May | 45 | 21 | 1 | 23 | 203,238 |
| June | 47 | 30 | 0 | 17 | 188,854 |
| July | 63 | 31 | 0 | 32 | 279,160 |
| August | 53 | 24 | 1 | 28 | 249,463 |
| September | 36 | 19 | 1 | 16 | 176,312 |
| October | 45 | 23 | 0 | 22 | 244,022 |
| November | 67 | 39 | 1 | 27 | 322,224 |
| December | 46 | 26 | 1 | 19 | 230,663 |
| Total | 587 | 322 | 8 | 257 | 2,803,214 |

### WYOMING

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 10 | 2 | 0 | 8 | 41,926 |
| February | 7 | 1 | 0 | 6 | 47,832 |
| March | 9 | 2 | 0 | 7 | 40,694 |
| April | 10 | 3 | 0 | 7 | 74,408 |
| May | 12 | 1 | 0 | 11 | 53,815 |
| June | 8 | 2 | 0 | 6 | 27,570 |
| July | 14 | 3 | 0 | 11 | 67,841 |
| August | 12 | 1 | 0 | 11 | 71,775 |
| September | 12 | 3 | 0 | 9 | 64,851 |
| October | 12 | 1 | 0 | 11 | 65,751 |
| November | 15 | 1 | 1 | 13 | 75,877 |
| December | 10 | 1 | 0 | 9 | 59,383 |
| Total | 131 | 21 | 1 | 109 | 691,723 |

### WYOMING

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 38 | 28 | 0 | 10 | 145,365 |
| February | 26 | 19 | 0 | 7 | 106,741 |
| March | 39 | 26 | 1 | 12 | 217,090 |
| April | 46 | 28 | 2 | 16 | 235,222 |
| May | 33 | 20 | 1 | 12 | 149,423 |
| June | 39 | 28 | 0 | 11 | 161,284 |
| July | 49 | 28 | 0 | 21 | 211,319 |
| August | 41 | 23 | 1 | 17 | 177,688 |
| September | 24 | 16 | 1 | 7 | 111,461 |
| October | 33 | 22 | 0 | 11 | 178,271 |
| November | 52 | 38 | 0 | 14 | 246,347 |
| December | 36 | 25 | 1 | 10 | 171,280 |
| Total | 456 | 301 | 7 | 148 | 2,111,491 |

### WYOMING

**Wildcat Completions by Counties**

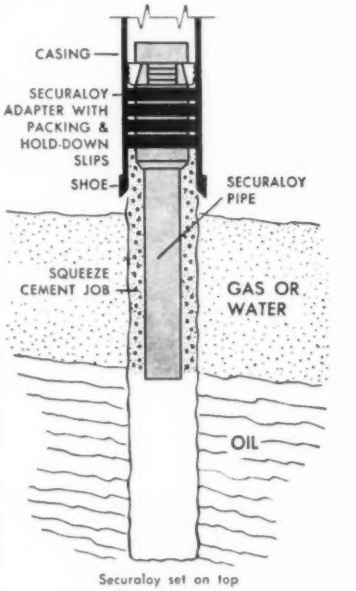
| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Albany | 2 | 0 | 0 | 2 | 10,186 |
| Big Horn | 5 | 0 | 0 | 5 | 10,455 |
| Campbell | 3 | 0 | 0 | 3 | 18,426 |
| Carbon | 9 | 0 | 0 | 9 | 29,181 |
| Converse | 1 | 0 | 0 | 1 | 10,207 |
| Crook | 14 | 0 | 0 | 14 | 38,880 |
| Fremont | 10 | 4 | 0 | 6 | 71,867 |
| Hot Springs | 8 | 5 | 0 | 3 | 41,346 |
| Johnson | 4 | 1 | 0 | 3 | 37,748 |
| Laramie | 5 | 1 | 0 | 4 | 36,187 |
| Lincoln | 4 | 0 | 0 | 4 | 32,326 |
| Natrona | 9 | 2 | 0 | 7 | 54,176 |
| Niobrara | 11 | 2 | 0 | 9 | 34,970 |
| Park | 6 | 0 | 0 | 6 | 40,969 |
| Platte | 3 | 0 | 0 | 3 | 3,131 |
| Sheridan | 1 | 0 | 0 | 1 | 12,215 |
| Sublette | 3 | 0 | 0 | 3 | 39,010 |
| Sweetwater | 5 | 0 | 1 | 4 | 37,871 |
| Teton | 2 | 0 | 0 | 2 | 8,170 |
| Uinta | 1 | 0 | 0 | 1 | 6,201 |
| Washakie | 3 | 1 | 0 | 2 | 13,673 |
| Weston | 22 | 5 | 0 | 17 | 104,328 |
| Total | 131 | 21 | 1 | 109 | 691,723 |


# USE OF SECURALOY SOLVES MANY PRODUCTION PROBLEMS

Securaloy pipe, which may be removed with chemicals or a drilling bit, is being used to solve many "difficult" production problems, such as correcting gas-oil ratios, water shutoffs and plug backs.

## CORRECTING GAS-OIL RATIOS

This method is similar to that used in the case history shown on the opposite page except that the Securaloy pipe extends through the gas zone to the top of the oil zone.




Securaloy set on top of producing zone

This method is used where the entire oil zone can be produced from open hole and where it is not necessary to confine the oil production to selective strata. The hole through the oil zone is first filled with gravel. Securaloy pipe is run and squeeze cemented in position. When the cement has set, Securaloy cementing shoe and gravel are cleaned out and well is ready for production, with gas or water successfully under control.

**SECURITY ENGINEERING CO., INC.**

*ONE OF THE DRESSER INDUSTRIES*

*Main Office and Plant:* Whittier, California
Branches in all of the major producing areas
*Export Office:* Chanin Building, New York City

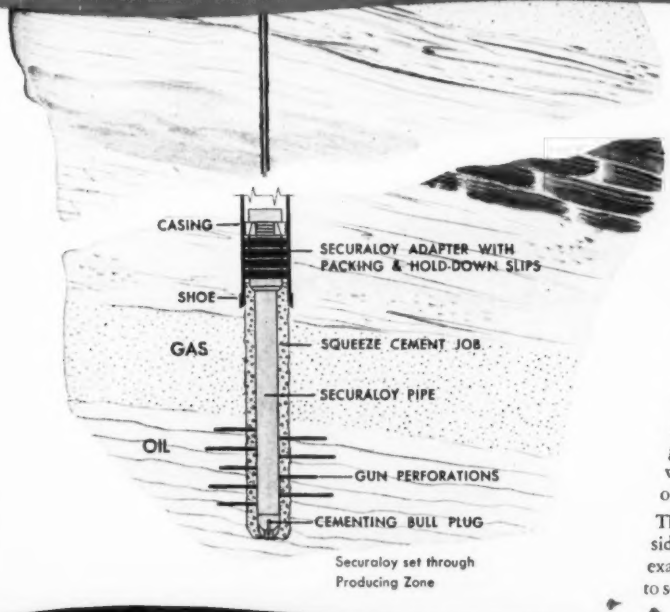
LOCATION: Texas

GAS-OIL RATIO: 300 to 1

PRODUCTION: 5-6 barrels per day on pump

QUESTION: How to increase production and lower gas-oil ratio by a simple and satisfactory remedial method

# Too much gas—Too little oil?




Securaloy set through Producing Zone

When a Texas operator found his gas-oil ratio too high and production way down he determined that the positive way to correct this situation was to use Securaloy. You, too, can profit by using Securaloy to solve your gas-oil ratio problems.

This operator first tried a plastic squeeze job, but the well still made only 6 barrels per day. Then a cement squeeze job was performed, with the entire open hole left full of cement and then drilled out. This proved unsuccessful too!

Finally, the operator cemented Securaloy pipe through the gas-oil sands, as shown. Selective strata were gun perforated and acidized. The well was then completed for 80 barrels of oil per day with a 40 to 1 gas-oil ratio!

This same remedial method is now considered standard practice . . . Another example of the application of Securaloy to solve your production problems.

**Security**

ROCK BITS • CORING BITS • HOLE OPENERS • REAMERS • CASING SCRAPERS

**Securaloy**

PRODUCTION EQUIPMENT

**SECURITY ENGINEERING CO., INC.**
*ONE OF THE DRESSER INDUSTRIES*
Main Office and Plant: Whittier, California
Branches in all of the major producing areas
Export Office: Chanin Building, New York City

### WYOMING
**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Big Medicine Bow | 2 | 1 | 0 | 1 | 13,714 |
| Big Muddy | 14 | 6 | 0 | 8 | 64,907 |
| Castle Creek | 2 | 1 | 0 | 1 | 4,601 |
| Dallas Derby | 5 | 4 | 0 | 1 | 7,796 |
| Elk Basin | 9 | 8 | 0 | 1 | 56,117 |
| Fiddler Creek | 88 | 66 | 0 | 22 | 427,660 |
| Frannie | 5 | 5 | 0 | 0 | 20,025 |
| Garland | 7 | 5 | 0 | 2 | 30,593 |
| Gooseberry | 2 | 2 | 0 | 0 | 11,918 |
| Grass Creek | 4 | 3 | 0 | 1 | 17,600 |
| Hamilton Dome | 11 | 11 | 0 | 0 | 34,526 |
| Hatfield | 6 | 4 | 0 | 2 | 35,568 |
| Hay Creek | 8 | 3 | 0 | 5 | 42,338 |
| Horse Creek | 13 | 13 | 0 | 0 | 72,932 |
| Kummerle | 2 | 0 | 0 | 2 | 11,090 |
| LaBarge | 2 | 1 | 0 | 1 | 2,444 |
| Lander-Hudson | 2 | 1 | 0 | 1 | 4,291 |
| Little Buck Creek | 3 | 3 | 0 | 0 | 15,590 |
| Little Sand Draw | 3 | 3 | 0 | 0 | 18,544 |
| Lost Soldier | 2 | 2 | 0 | 0 | 13,610 |
| Mush Creek | 62 | 27 | 0 | 35 | 253,716 |
| North Baxter Basin | 2 | 0 | 2 | 0 | 8,256 |
| Oregon Basin | 13 | 11 | 1 | 1 | 51,708 |
| Osage | 2 | 1 | 0 | 1 | 4,002 |
| Pilot Butte | 11 | 9 | 1 | 1 | 51,395 |
| Pine Mountain | 4 | 1 | 1 | 2 | 7,397 |
| Quealy Dome | 2 | 2 | 0 | 0 | 11,630 |
| Salt Creek | 10 | 9 | 0 | 1 | 24,496 |
| Sand Creek | 3 | 3 | 0 | 0 | 34,346 |
| Sand Draw | 2 | 2 | 0 | 0 | 15,658 |
| Silver Tip | 10 | 7 | 0 | 3 | 67,185 |
| Skull Creek | 73 | 44 | 1 | 28 | 239,784 |
| Spring Valley | 2 | 2 | 0 | 0 | 5,320 |
| Steamboat Butte | 3 | 2 | 0 | 1 | 21,340 |
| Sussex | 8 | 5 | 0 | 3 | 58,984 |
| Torchlight | 2 | 0 | 0 | 2 | 4,432 |
| West Fiddler Creek | 4 | 4 | 0 | 0 | 21,365 |
| West Mush Creek | 7 | 4 | 0 | 3 | 35,210 |
| Worland | 11 | 11 | 0 | 0 | 113,908 |
| Miscellaneous | 35 | 15 | 1 | 19 | 175,495 |
| Total | 456 | 301 | 7 | 148 | 2,111,491 |

### ARIZONA
**Wildcat Completions* by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| February | 2 | 0 | 0 | 2 | 7,055 |
| June | 1 | 0 | 0 | 1 | 3,734 |
| Total | 3 | 0 | 0 | 3 | 10,789 |

*No development completions.

### COLORADO
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 13 | 8 | 0 | 5 | 66,765 |
| February | 2 | 1 | 0 | 1 | 7,822 |
| March | 1 | 0 | 0 | 1 | 5,436 |
| April | 9 | 4 | 0 | 5 | 51,540 |
| May | 8 | 1 | 0 | 7 | 27,648 |
| June | 3 | 0 | 0 | 3 | 11,005 |
| July | 9 | 1 | 0 | 8 | 35,914 |
| August | 6 | 2 | 0 | 4 | 36,296 |
| September | 15 | 2 | 2 | 11 | 47,359 |
| October | 6 | 0 | 1 | 5 | 19,809 |
| November | 4 | 1 | 0 | 3 | 20,542 |
| December | 6 | 1 | 1 | 4 | 28,843 |
| Total | 82 | 21 | 4 | 57 | 358,979 |

### COLORADO
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 3 | 1 | 0 | 2 | 20,901 |
| March | 1 | 0 | 0 | 1 | 5,436 |
| April | 5 | 0 | 0 | 5 | 25,807 |
| May | 5 | 0 | 0 | 5 | 10,819 |
| June | 2 | 0 | 0 | 2 | 4,974 |
| July | 7 | 0 | 0 | 7 | 28,031 |
| August | 4 | 0 | 0 | 4 | 23,122 |
| September | 7 | 0 | 0 | 7 | 18,040 |
| October | 5 | 0 | 0 | 5 | 15,659 |
| November | 3 | 0 | 0 | 3 | 13,700 |
| December | 6 | 1 | 1 | 4 | 28,843 |
| Total | 48 | 2 | 1 | 45 | 195,332 |

### COLORADO
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 10 | 7 | 0 | 3 | 45,864 |
| February | 2 | 1 | 0 | 1 | 7,822 |
| April | 4 | 4 | 0 | 0 | 25,733 |
| May | 3 | 1 | 0 | 2 | 16,829 |
| June | 1 | 0 | 0 | 1 | 6,031 |
| July | 2 | 1 | 0 | 1 | 7,883 |
| August | 2 | 2 | 0 | 0 | 13,174 |
| September | 8 | 2 | 2 | 4 | 29,319 |
| October | 1 | 0 | 1 | 0 | 4,150 |
| November | 1 | 1 | 0 | 0 | 6,842 |
| Total | 34 | 19 | 3 | 12 | 163,647 |

### COLORADO
**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Adams | 1 | 0 | 0 | 1 | 2,024 |
| Archuleta | 2 | 0 | 0 | 2 | 4,633 |
| Boulder | 1 | 0 | 0 | 1 | 4,977 |
| Crowley | 2 | 0 | 0 | 2 | 14,702 |
| Denver | 1 | 0 | 0 | 1 | 1,251 |
| Eagle | 1 | 0 | 0 | 1 | 6,321 |
| El Paso | 2 | 0 | 0 | 2 | 4,700 |
| Huerfano | 1 | 0 | 0 | 1 | 1,405 |
| Kiowa | 1 | 0 | 0 | 1 | 2,012 |
| Larimer | 3 | 0 | 0 | 3 | 6,483 |
| Las Animas | 1 | 0 | 0 | 1 | 7,457 |
| Lincoln | 1 | 0 | 0 | 1 | 3,677 |
| Logan | 4 | 0 | 0 | 4 | 21,129 |
| Mesa | 1 | 0 | 1 | 0 | 4,223 |
| Moffat | 6 | 0 | 0 | 6 | 26,753 |
| Montezuma | 2 | 1 | 0 | 1 | 12,361 |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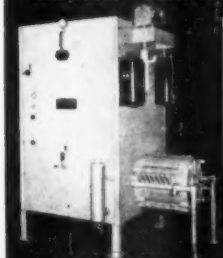
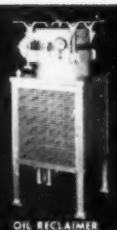



HILCO

OIL PURIFICATION EQUIPMENT

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# WHITNEY NATIONAL BANK
## OF NEW ORLEANS

ESTABLISHED 1883

CONDENSED STATEMENT OF CONDITION

DECEMBER 31, 1949

| ASSETS | | LIABILITIES | | |
|---|---|---|---|---|
| Cash and Due from Banks | $ 82,574,731.56 | Deposits | | $331,072,238.00 |
| U. S. Government Obligations | 166,764,998.50 | Acceptances | | 2,103,202.24 |
| State, Municipal and Other Public Bonds | 13,831,670.39 | Dividend Payable Jan. 3, 1950 | | 112,000.00 |
| Other Bonds and Securities | 403,174.27 | Reserve for Taxes and Accrued Interest and Expenses | | 1,269,979.20 |
| Loans and Discounts | 83,299,419.64 | Other Liabilities | | 45,566.53 |
| Bank Premises | 2,850,208.14 | Capital Stock | $2,800,000.00 | |
| Other Real Estate | 213,910.07 | Surplus | 9,200,000.00 | |
| Customers' Liability Account of Acceptances | 1,188,326.90 | Undivided Profits | 5,885,529.65 | |
| Accrued Income Receivable and Other Assets | 1,362,076.15 | | | 17,885,529.65 |
| TOTAL | $352,488,515.62 | TOTAL | | $352,488,515.62 |

DEPOSITARY OF THE UNITED STATES GOVERNMENT, STATE OF LOUISIANA AND THE CITY OF NEW ORLEANS
MEMBER OF THE FEDERAL DEPOSIT INSURANCE CORPORATION



BRAND NEW

MODEL SL 3660

MINERALIGHT

**Geologists' ultra-violet lamp for testing oil samples by fluorescence**

- **Long wave, 3660 A.U., best for oil**
- **High intensity**
- **Weighs only 16 ounces**
- **110-volt A.C.**

***. . . and for the first time, a long wave ultra-violet lamp for battery operation***

MINERALIGHT is one of the finest and most necessary field instruments a petroleum geologist can use. Every geologist can have one at the low price of $29.50, for 110-volt model. Complete field equipment, including carrying case, view box, and batteries, $23.50 additional. Weight 8 pounds.

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GUARD YOUR ENGINE'S HEART ZONE

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THE HEAT ZONE

Your engine's heart zone is its heat zone—the top cylinder area. That's where vital valves must work—where heat is hottest—where sizzling temperatures scorch lubricants and leave bare metal unprotected . . . that's where Marvel Mystery Oil and the Marvel Inverse Oiler really go to work!

Marvel Mystery Oil is specifically compounded to resist heat. Here's liquid armor for your engine's heart—this *extra* tough protective film cleans as it clads! Marvel dissolves sticky gum, sludge and varnish from valves, guides and rings—keeps them cleanly coated.

Your engine throbs with power when lubrication is right. Performance picks up, and "down time" stays down. Ask for the facts. Emerol Mfg. Co., Inc., 232 W. 69th St., New York 23, N. Y.

use the MARVEL INVERSE OILER WITH MARVEL MYSTERY OIL

The Marvel Inverse Oiler, easily installed, proportions the flow of Marvel Mystery Oil precisely to the needs of your engine.

Complete facilities to accomplish an exploration project of any magnitude—with World Wide Experience available.

SSC's integrated organization brings many years of successful management; legal, operating and interpretative experience to the satisfactory completion of a seismic exploration contract.

Seismograph Service Corporation

TULSA OKLAHOMA U.S.A.

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Montrose | 2 | 0 | 0 | 2 | 1,914 |
| Morgan | 2 | 0 | 0 | 2 | 7,256 |
| Ouray | 2 | 0 | 0 | 2 | 2,395 |
| Park | 2 | 0 | 0 | 2 | 13,280 |
| Pueblo | 1 | 0 | 0 | 1 | 2,053 |
| Rio Blanco | 4 | 0 | 0 | 4 | 17,910 |
| Routt | 3 | 1 | 0 | 2 | 14,881 |
| Weld | 1 | 0 | 0 | 1 | 7,885 |
| Yuma | 1 | 0 | 0 | 1 | 3,650 |
| Total | 48 | 2 | 1 | 45 | 195,332 |

**COLORADO**
**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Barker Creek | 1 | 0 | 1 | 0 | 9,654 |
| Berthoud | 1 | 0 | 0 | 1 | 4,011 |
| Chromo | 6 | 3 | 0 | 3 | 4,381 |
| Dove Creek | 3 | 0 | 0 | 3 | 12,622 |
| Elk Springs | 1 | 0 | 0 | 1 | 7,029 |
| Florence | 3 | 0 | 0 | 3 | 8,221 |
| Hiawatha | 1 | 0 | 0 | 1 | 4,493 |
| Maudlin Gulch | 2 | 2 | 0 | 0 | 13,693 |
| Paroda | 1 | 0 | 1 | 0 | 4,150 |
| Powder Wash | 2 | 1 | 1 | 0 | 11,572 |
| Rangely | 12 | 12 | 0 | 0 | 77,071 |
| Wilson Creek | 1 | 1 | 0 | 0 | 6,750 |
| Total | 34 | 19 | 3 | 12 | 163,647 |

**UTAH**
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 2 | 0 | 1 | 1 | 11,458 |
| February | 2 | 0 | 0 | 2 | 8,681 |
| March | 5 | 3 | 0 | 2 | 21,267 |
| April | 2 | 1 | 0 | 1 | 12,847 |
| May | 6 | 5 | 0 | 1 | 25,656 |
| June | 4 | 4 | 0 | 0 | 14,522 |
| July | 7 | 5 | 0 | 2 | 34,792 |
| August | 3 | 0 | 0 | 3 | 19,441 |
| September | 6 | 3 | 0 | 3 | 23,997 |
| October | 7 | 3 | 0 | 4 | 38,012 |
| November | 4 | 1 | 0 | 3 | 30,100 |
| December | 1 | 0 | 0 | 1 | 4,255 |
| Total | 49 | 25 | 1 | 23 | 245,028 |

**UTAH**
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 1 | 0 | 0 | 1 | 6,150 |
| February | 2 | 0 | 0 | 2 | 8,681 |
| March | 1 | 0 | 0 | 1 | 7,107 |
| April | 1 | 0 | 0 | 1 | 8,520 |
| July | 3 | 1 | 0 | 2 | 17,743 |
| August | 2 | 0 | 0 | 2 | 10,828 |
| September | 3 | 0 | 0 | 3 | 13,903 |
| October | 4 | 0 | 0 | 4 | 25,286 |
| November | 2 | 0 | 0 | 2 | 19,666 |
| Total | 19 | 1 | 0 | 18 | 117,884 |

**UTAH**
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 1 | 0 | 1 | 0 | 5,308 |
| March | 4 | 3 | 0 | 1 | 14,160 |
| April | 1 | 1 | 0 | 0 | 4,327 |
| May | 6 | 5 | 0 | 1 | 25,656 |
| June | 4 | 4 | 0 | 0 | 14,522 |
| July | 4 | 4 | 0 | 0 | 17,049 |
| August | 1 | 0 | 0 | 1 | 8,613 |
| September | 3 | 3 | 0 | 0 | 10,094 |
| October | 3 | 3 | 0 | 0 | 12,726 |
| November | 2 | 1 | 0 | 1 | 10,434 |
| December | 1 | 0 | 0 | 1 | 4,255 |
| Total | 30 | 24 | 1 | 5 | 127,144 |

**UTAH**
**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Emery | 1 | 0 | 0 | 1 | 5,473 |
| Garfield | 2 | 1 | 0 | 1 | 19,029 |
| Grand | 7 | 0 | 0 | 7 | 47,877 |
| San Pete | 1 | 0 | 0 | 1 | 1,730 |
| Uintah | 7 | 0 | 0 | 7 | 38,843 |
| Wayne | 1 | 0 | 0 | 1 | 4,932 |
| Total | 19 | 1 | 0 | 18 | 117,884 |

**UTAH**
**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Ashley Valley | 26 | 22 | 0 | 4 | 117,087 |
| Boundary Butte | 4 | 2 | 1 | 1 | 10,057 |
| Total | 30 | 24 | 1 | 5 | 127,144 |

**NORTHWEST NEW MEXICO**
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 2 | 0 | 0 | 2 | 2,933 |
| February | 1 | 0 | 0 | 1 | 2,560 |
| April | 2 | 0 | 1 | 1 | 9,889 |
| May | 1 | 0 | 0 | 1 | 994 |
| June | 1 | 0 | 0 | 1 | 980 |
| July | 2 | 0 | 1 | 1 | 4,686 |
| August | 2 | 0 | 1 | 1 | 12,427 |
| September | 1 | 0 | 1 | 0 | 5,330 |
| October | 2 | 0 | 0 | 2 | 8,189 |
| November | 1 | 0 | 1 | 0 | 2,212 |
| Total | 15 | 0 | 5 | 10 | 50,200 |

**NORTHWEST NEW MEXICO**
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 1 | 0 | 0 | 1 | 2,090 |
| February | 1 | 0 | 0 | 1 | 2,560 |
| July | 2 | 0 | 1 | 1 | 4,686 |
| August | 1 | 0 | 1 | 0 | 8,087 |
| September | 1 | 0 | 1 | 0 | 5,330 |
| October | 2 | 0 | 0 | 2 | 8,189 |
| Total | 8 | 0 | 3 | 5 | 30,942 |

**NORTHWEST NEW MEXICO**
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 1 | 0 | 0 | 1 | 843 |
| April | 2 | 0 | 1 | 1 | 9,889 |
| May | 1 | 0 | 0 | 1 | 994 |
| June | 1 | 0 | 0 | 1 | 980 |
| August | 1 | 0 | 0 | 1 | 4,340 |
| November | 1 | 0 | 1 | 0 | 2,212 |
| Total | 7 | 0 | 2 | 5 | 19,258 |

**NORTHWEST NEW MEXICO**
**Wildcat Completions by Counties**

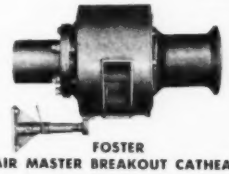
| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Rio Arriba | 5 | 0 | 2 | 3 | 20,962 |
| Sandoval | 1 | 0 | 0 | 1 | 2,560 |

FOR "SAFETY"

"Foster Catheads mean more Safety. I've been watching Foster Catheads in development, manufacture and operation for more years than many of you have been around the fields. And their features that make them SAFER—coming with specialization in cathead manufacturing—are the ones that make them FIRST CHOICE of the Drilling Industry.

"These easier to operate, safer, faster, more dependable and economical Foster Catheads are sold through supply stores everywhere.

"The peak of Cathead perfection has been attained in the Foster Air Master Breakout Cathead and the Foster Air Spinning Cathead."



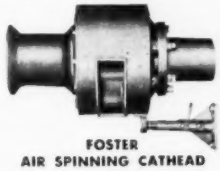
FOSTER
AIR MASTER BREAKOUT CATHEAD

Safer . . . fully enclosed . . . operator in complete control of pull on jerkline at all times.

Faster . . . instant engagement without reducing lineshaft speed.

Dependable . . . 16" triple plate crawl-free friction clutch, amply powered and field proved.

Economical . . . no brakes required and no metal-to-metal impacts . . . no adjustments during life of Cathead.



FOSTER
AIR SPINNING CATHEAD

Safer . . . fully enclosed . . . operator can apply any desired amount of power to the pull line.

Faster . . . instant engagement without reducing lineshaft speed.

Dependable . . . 19½" single plate crawl-free friction clutch, recommended for pull up to 12,000 lbs.

Economical . . . smoothness of power makes spinning rope and spinning chain last much longer . . . no adjustments during life of Cathead.

In addition to the above the Foster Cathead Company manufactures the regular Foster Master, Type B, Breakout Cathead and Foster Spinning Cathead; plus the Foster Midget Master Breakout Cathead and Foster Midget Spinning Catheads for shallow drilling and clean out rigs.

Foster CATHEAD COMPANY
P. O. BOX 1073 WICHITA FALLS, TEXAS

FACTORY REPRESENTATIVES
Hagaman Equipment Company — Tillery & Parks — R. D. Claridge

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| San Juan | 2 | 0 | 1 | 1 | 7,420 |
| Total | 8 | 0 | 3 | 5 | 30,942 |

**NORTHWEST NEW MEXICO**
**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Barker Creek, San Juan | 1 | 0 | 1 | 0 | 8,905 |
| Kutz Canyon, San Juan | 2 | 0 | 1 | 1 | 6,552 |
| Rattlesnake, San Juan | 4 | 0 | 0 | 4 | 3,801 |
| Total | 7 | 0 | 2 | 5 | 19,258 |

**SOUTH DAKOTA**
**Wildcat Completions* by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| June | 3 | 0 | 0 | 3 | 3,929 |
| July | 3 | 0 | 0 | 3 | 9,574 |
| September | 1 | 0 | 0 | 1 | 1,370 |
| October | 3 | 0 | 0 | 3 | 4,173 |
| November | 2 | 0 | 0 | 2 | 5,125 |
| Total | 12 | 0 | 0 | 12 | 24,171 |

*No development completions.

**NORTH DAKOTA**
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| September | 1 | 0 | 0 | 1 | 1,665 |
| October | 3 | 0 | 3 | 0 | 4,023 |
| November | 2 | 0 | 0 | 2 | 11,658 |
| Total | 6 | 0 | 3 | 3 | 17,346 |

**NORTH DAKOTA**
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| September | 1 | 0 | 0 | 1 | 1,665 |
| November | 2 | 0 | 0 | 2 | 11,658 |
| Total | 3 | 0 | 0 | 3 | 13,323 |

**NORTH DAKOTA**
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| October | 3 | 0 | 3 | 0 | 4,023 |
| Total | 3 | 0 | 3 | 0 | 4,023 |

**MICHIGAN**
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 71 | 24 | 3 | 44 | 163,021 |
| February | 71 | 24 | 1 | 40 | 160,066 |
| March | 53 | 20 | 1 | 32 | 107,635 |
| April | 76 | 29 | 0 | 47 | 176,518 |
| May | 58 | 30 | 1 | 27 | 119,045 |
| June | 116 | 56 | 0 | 60 | 256,821 |
| July | 82 | 35 | 2 | 45 | 180,170 |
| August | 105 | 43 | 1 | 61 | 217,484 |
| September | 104 | 42 | 7 | 55 | 238,420 |
| October | 114 | 54 | 3 | 57 | 246,504 |
| November | 67 | 31 | 2 | 34 | 160,642 |
| December | 78 | 32 | 2 | 44 | 182,201 |
| Total | 995 | 426 | 23 | *546 | 2,208,527 |

*Includes 70 service wells.

**MICHIGAN**
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 31 | 1 | 1 | 29 | 66,450 |
| February | 27 | 3 | 0 | 24 | 56,687 |
| March | 25 | 3 | 0 | 22 | 52,349 |
| April | 32 | 1 | 0 | 31 | 68,484 |
| May | 23 | 3 | 0 | 20 | 44,682 |
| June | 31 | 4 | 0 | 27 | 65,910 |
| July | 17 | 0 | 0 | 17 | 38,118 |
| August | 32 | 1 | 0 | 31 | 65,025 |
| September | 34 | 2 | 2 | 30 | 77,308 |
| October | 33 | 4 | 0 | 29 | 71,200 |
| November | 26 | 1 | 0 | 25 | 59,417 |
| December | 33 | 5 | 0 | 28 | 81,325 |
| Total | 344 | 28 | 3 | 313 | 746,955 |

**MICHIGAN**
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 40 | 23 | 2 | 15 | 96,571 |
| February | 44 | 27 | 1 | 16 | 103,379 |
| March | 28 | 17 | 1 | 10 | 55,286 |
| April | 44 | 28 | 0 | 16 | 108,034 |
| May | 35 | 27 | 1 | 7 | 74,363 |
| June | 85 | 52 | 0 | 33 | 190,911 |
| July | 65 | 35 | 2 | 28 | 142,052 |
| August | 73 | 42 | 1 | 30 | 152,459 |
| September | 70 | 40 | 5 | 25 | 161,112 |
| October | 81 | 50 | 3 | 28 | 175,304 |
| November | 41 | 30 | 2 | 9 | 101,225 |
| December | 45 | 27 | 2 | 16 | 100,876 |
| Total | 651 | 398 | 20 | 233 | 1,461,572 |

**MICHIGAN**
**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Allegan | 91 | 8 | 0 | 83 | 124,566 |
| Arenac | 11 | 0 | 0 | 11 | 35,590 |
| Barry | 8 | 1 | 0 | 7 | 16,990 |
| Bay | 9 | 2 | 0 | 7 | 24,721 |
| Clare | 5 | 0 | 0 | 5 | 18,086 |
| Gladwin | 13 | 5 | 0 | 8 | 52,566 |
| Gratiot | 5 | 0 | 0 | 5 | 13,357 |
| Ionia | 5 | 0 | 0 | 5 | 12,885 |
| Isabella | 9 | 0 | 0 | 9 | 23,574 |
| Kalamazoo | 5 | 2 | 0 | 3 | 6,825 |
| Kent | 18 | 0 | 0 | 18 | 37,763 |
| Lake | 5 | 0 | 0 | 5 | 16,590 |
| Mason | 8 | 0 | 0 | 8 | 19,786 |
| Mecosta | 6 | 1 | 1 | 4 | 19,499 |
| Midland | 5 | 0 | 0 | 5 | 19,055 |
| Montcalm | 7 | 0 | 0 | 7 | 21,523 |
| Muskegon | 16 | 1 | 1 | 14 | 32,842 |
| Newaygo | 12 | 1 | 0 | 11 | 30,549 |
| Oceana | 16 | 2 | 0 | 14 | 37,101 |
| Ottawa | 10 | 0 | 0 | 10 | 17,499 |
| Saginaw | 6 | 0 | 0 | 6 | 19,607 |
| St. Clair | 6 | 0 | 0 | 6 | 9,911 |
| Van Buren | 34 | 3 | 0 | 31 | 39,218 |
| Miscellaneous | 34 | 2 | 1 | 31 | 96,852 |
| Total | 334 | 28 | 3 | 313 | 746,955 |

**MICHIGAN**
**Development Completions by Fields**

| Fields— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Adams | 15 | 12 | 0 | 3 | 59,730 |
| Akron | 10 | 10 | 0 | 0 | 28,308 |
| Bard | 10 | 7 | 0 | 3 | 39,548 |
| Beaver Creek | 30 | 28 | 0 | 2 | 129,715 |
| Bentley | 11 | 9 | 0 | 2 | 38,860 |


# Harrisburg Couplings

*from every angle...*

threads unexcelled in accuracy of form, height, angle, lead!

Made to A.P.I. Specifications

Millions of *Harrisburg* non-destructible forged seamless steel couplings are being used today in all branches of the petroleum industry, where couplings are put to their severest test.

They are threaded by a special process, designed and perfected by our engineering staff, on costly threading equipment developed for the purpose out of our three decades of experience.

*Harrisburg* couplings will not gall under the most severe strain. In a quality coupling, threads must be equal in every respect to the engaging thread of the pipe to produce a good, leak-proof joint.

When joined with accurately threaded pipe, *Harrisburg* couplings produce a tight and lasting joint.

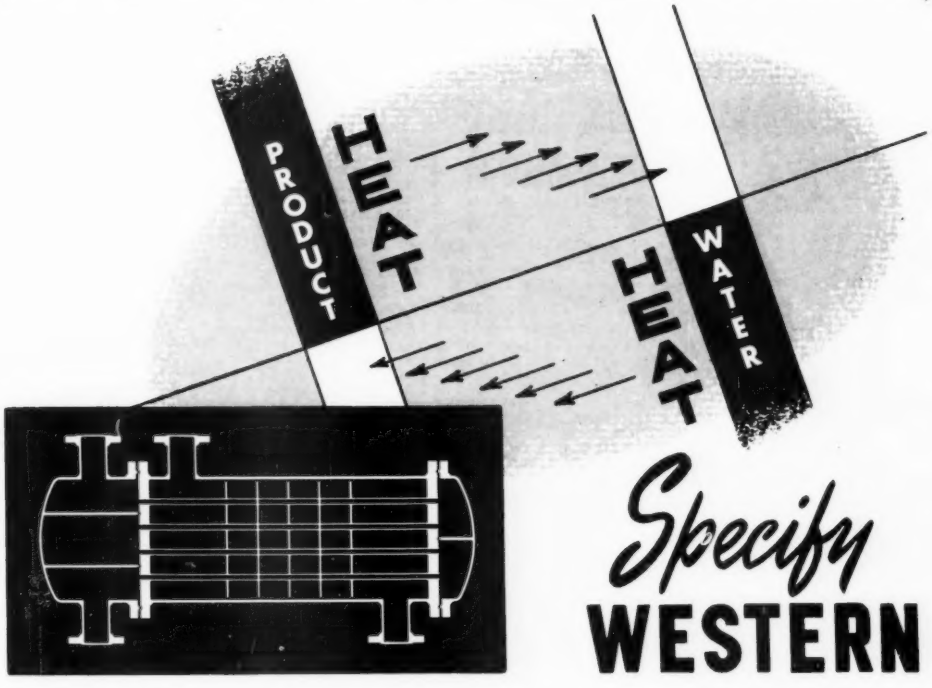
Specify *Harrisburg* couplings next time you order—for accuracy of form, height, angle, and lead.

*Write for our Couplings Catalog.*

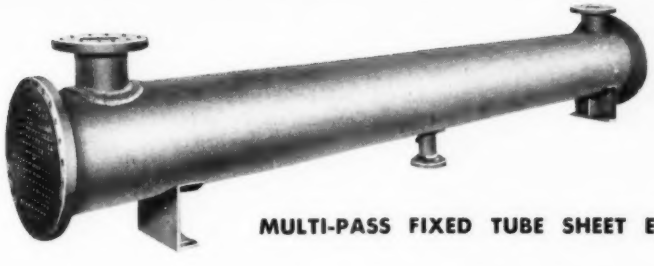
**Harrisburg Steel Corporation**
HARRISBURG 6, PENNSYLVANIA

97 YEARS IN PENNSYLVANIA'S CAPITAL

# *For a* PROFITABLE *Exchange*




## *Specify* WESTERN



MULTI-PASS FIXED TUBE SHEET EXCHANGER

Western Heat Transfer Equipment plays an important role in general chemical processing. Close attention to detail and specification, from design to installation, is the prime consideration in the manufacture of all Western equipment. Refineries, chemical processing plants and pipe lines throughout the world depend on Western's economical, uninterrupted service.

SAN FRANCISCO REPRESENTATIVE: TRIDENT ENGINEERING CO

TEMA

**WESTERN**
***HEAT EXCHANGERS***

*Manufactured by*
**WESTERN SUPPLY COMPANY**
P.O. BOX 1888 TULSA, OKLAHOMA
*SALES OFFICES — DALLAS — HOUSTON*

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Billings | 10 | 10 | 0 | 0 | 35,619 |
| Bloomingdale | 20 | 14 | 0 | 6 | 25,532 |
| Coffee Lake | 6 | 1 | 0 | 5 | 6,848 |
| Cranberry Lake | 37 | 0 | 0 | 37 | 48,482 |
| Enterprise | 6 | 5 | 0 | 1 | 27,585 |
| Essexville | 6 | 3 | 0 | 3 | 17,432 |
| Freeport | 7 | 0 | 0 | 7 | 14,982 |
| Geneva | 36 | 15 | 0 | 21 | 37,161 |
| Goodwell | 12 | 0 | 0 | 12 | 14,002 |
| Hope | 15 | 12 | 0 | 3 | 28,477 |
| Hopkins, South | 22 | 16 | 0 | 6 | 34,539 |
| Isabella | 25 | 18 | 5 | 2 | 83,422 |
| Kawkawlin | 36 | 36 | 0 | 0 | 104,681 |
| Lacota | 8 | 1 | 0 | 7 | 8,651 |
| Lee and South | 28 | 14 | 0 | 14 | 32,808 |
| Marion | 14 | 0 | 0 | *14 | 18,566 |
| Mears | 7 | 2 | 0 | 5 | 15,875 |
| Mount Forest | 6 | 6 | 0 | 0 | 18,213 |
| Mount Pleasant | 6 | 4 | 0 | 2 | 21,445 |
| Pentwater | 83 | 77 | 0 | 6 | 161,119 |
| Pullman | 10 | 5 | 0 | 5 | 12,707 |
| Reed City | 7 | 0 | 0 | 7 | 8,576 |
| St. Helen | 8 | 8 | 0 | 0 | 34,164 |
| Stony Lake | 29 | 29 | 0 | 0 | 48,545 |
| Sylvan | 9 | 7 | 0 | 2 | 35,538 |
| Trent | 6 | 1 | 0 | 5 | 12,467 |
| Walker | 8 | 8 | 0 | 0 | 15,088 |
| Miscellaneous | 108 | 40 | 15 | 53 | 242,887 |
| Total | 651 | 398 | 20 | 233 | 1,461,572 |

*Gas storage.

### WISCONSIN

**Wildcat Completions* by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| August | 1 | 0 | 0 | 1 | 4,420 |

*No development completions.

### ILLINOIS

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 203 | 101 | 1 | 101 | 530,472 |
| February | 151 | 88 | 1 | 62 | 402,285 |
| March | 142 | 79 | 0 | 63 | 363,315 |
| April | 183 | 107 | 0 | 76 | 449,367 |
| May | 235 | 121 | 0 | 114 | 594,098 |
| June | 263 | 142 | 0 | 121 | 644,957 |
| July | 286 | 156 | 1 | 129 | 677,961 |
| August | 244 | 111 | 0 | 133 | 579,936 |
| September | 244 | 119 | 0 | 125 | 547,336 |
| October | 287 | 145 | 1 | 141 | 596,548 |
| November | 240 | 116 | 1 | 123 | 488,884 |
| December | 233 | 107 | 1 | 125 | 486,456 |
| Total | 2,711 | 1,392 | 6 | *1,313 | 6,361,615 |

*Incl. 5 service wells.

### ILLINOIS

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 53 | 5 | 0 | 48 | 128,379 |
| February | 43 | 10 | 0 | 33 | 115,507 |
| March | 29 | 3 | 0 | 26 | 70,460 |
| April | 48 | 8 | 0 | 40 | 113,466 |
| May | 66 | 10 | 0 | 56 | 151,687 |
| June | 63 | 11 | 0 | 52 | 140,801 |
| July | 79 | 12 | 0 | 67 | 171,811 |
| August | 77 | 12 | 0 | 65 | 174,360 |
| September | 71 | 11 | 0 | 60 | 156,480 |
| October | 79 | 8 | 1 | 70 | 150,358 |
| November | 66 | 6 | 1 | 59 | 121,196 |
| December | 50 | 2 | 1 | 47 | 89,325 |
| Total | 724 | 98 | 3 | 623 | 1,583,830 |

### ILLINOIS

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 150 | 96 | 1 | 53 | 402,093 |
| February | 108 | 78 | 1 | 29 | 286,778 |
| March | 113 | 76 | 0 | 37 | 292,855 |
| April | 135 | 99 | 0 | 36 | 335,901 |
| May | 169 | 111 | 0 | 58 | 442,411 |
| June | 200 | 131 | 0 | 69 | 504,156 |
| July | 207 | 144 | 1 | 62 | 506,150 |
| August | 167 | 99 | 0 | 68 | 405,576 |
| September | 173 | 108 | 0 | 65 | 390,856 |
| October | 208 | 137 | 0 | 71 | 446,190 |
| November | 174 | 110 | 0 | 64 | 367,688 |
| December | 183 | 105 | 0 | 78 | 397,131 |
| Total | 1,987 | 1,294 | 3 | 690 | 4,777,785 |

### ILLINOIS

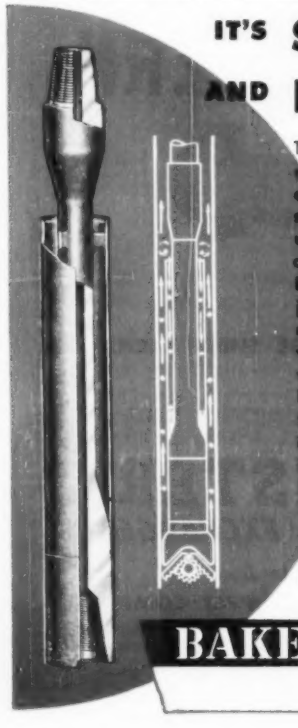
**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Bond | 10 | 2 | 0 | 8 | 13,676 |
| Christian | 39 | 5 | 0 | 34 | 79,065 |
| Clark | 24 | 2 | 0 | 22 | 34,284 |
| Clay | 29 | 4 | 0 | 25 | 86,612 |
| Clinton | 14 | 2 | 0 | 12 | 24,520 |
| Coles | 20 | 1 | 0 | 19 | 14,834 |
| Edgar | 59 | 2 | 2 | 55 | 44,475 |
| Edwards | 17 | 4 | 0 | 13 | 55,670 |
| Effingham | 5 | 0 | 0 | 5 | 13,452 |
| Fayette | 11 | 4 | 0 | 7 | 19,863 |
| Franklin | 20 | 4 | 0 | 16 | 63,076 |
| Gallatin | 41 | 14 | 0 | 27 | 99,469 |
| Hamilton | 20 | 6 | 0 | 14 | 64,152 |
| Jasper | 22 | 5 | 0 | 17 | 65,174 |
| Jefferson | 13 | 2 | 0 | 11 | 36,284 |
| Lawrence | 13 | 2 | 0 | 11 | 27,563 |
| Macon | 10 | 0 | 0 | 10 | 21,509 |
| Macoupin | 14 | 0 | 0 | 14 | 12,781 |
| Madison | 41 | 1 | 0 | 40 | 42,169 |
| Marion | 29 | 3 | 0 | 26 | 63,181 |
| Montgomery | 15 | 0 | 1 | 14 | 18,334 |
| Moultrie | 6 | 0 | 0 | 6 | 14,483 |
| Perry | 4 | 0 | 0 | 4 | 6,447 |
| Richland | 28 | 5 | 0 | 23 | 88,348 |
| Saline | 16 | 0 | 0 | 16 | 42,752 |
| Shelby | 16 | 0 | 0 | 16 | 30,723 |
| Wabash | 49 | 12 | 0 | 37 | 125,200 |
| Washington | 15 | 0 | 0 | 15 | 38,545 |
| Wayne | 54 | 8 | 0 | 46 | 176,320 |
| White | 35 | 7 | 0 | 28 | 107,860 |
| Miscellaneous | 35 | 3 | 0 | 32 | 53,009 |
| Total | 724 | 98 | 3 | 623 | 1,583,830 |

### ILLINOIS

**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Akin | 7 | 6 | 0 | 1 | 21,209 |
| Albion Consol. | 61 | 37 | 0 | 24 | 176,235 |
| Albion, E. | 5 | 1 | 0 | 4 | 15,813 |
| Allendale | 88 | 53 | 0 | 35 | 173,733 |
| Assumption, N. | 124 | 119 | 0 | 5 | 225,920 |
| Beaver Creek, S. | 10 | 5 | 0 | 5 | 11,488 |
| Bennington | 7 | 6 | 0 | 1 | 22,867 |
| Benton, N. | 24 | 18 | 0 | 6 | 65,151 |
| Berryville | 6 | 4 | 0 | 2 | 17,621 |
| Bungay Consol. | 6 | 0 | 0 | 6 | 20,677 |
| Centerville, E. | 17 | 13 | 0 | 4 | 50,144 |
| Centralia | 47 | 44 | 0 | 3 | 180,417 |
| Cisne, N. | 6 | 5 | 0 | 1 | 19,110 |
| Clay City-Noble Consol. | 151 | 94 | 0 | 57 | 447,201 |
| Concord Central | 4 | 3 | 0 | 1 | 11,788 |
| Concord, S. | 4 | 1 | 0 | 3 | 9,896 |
| Dale-Hoodville Consol. | 5 | 2 | 0 | 3 | 15,152 |
| Dead River | 6 | 3 | 0 | 3 | 15,081 |
| Divide, E. | 17 | 12 | 0 | 5 | 47,880 |
| Dudley | 65 | 45 | 0 | 20 | 27,998 |
| Dundas, E. | 18 | 6 | 0 | 12 | 53,543 |
| Dupo | 4 | 3 | 0 | 1 | 3,744 |
| Elbridge | 19 | 16 | 0 | 3 | 19,746 |
| Fairfield | 51 | 42 | 0 | 9 | 167,350 |
| Frankfort, W. | 11 | 7 | 0 | 4 | 30,958 |
| Goldengate Consol. | 5 | 2 | 0 | 3 | 17,310 |
| Half Moon | 8 | 8 | 0 | 0 | 26,606 |
| Herald | 19 | 9 | 0 | 10 | 54,171 |
| Herald, E. | 10 | 3 | 0 | 7 | 26,149 |
| Inman | 20 | 13 | 0 | 7 | 43,701 |
| Inman East Consol. | 66 | 56 | 0 | 10 | 150,260 |
| Inman West Consol. | 22 | 14 | 0 | 8 | 57,106 |
| Iola Consol. | 5 | 4 | 0 | 1 | 12,464 |
| Johnson, S. | 4 | 2 | 0 | 2 | 2,767 |
| Johnsonville Consol. | 4 | 1 | 0 | 3 | 12,657 |
| Junction | 5 | 2 | 0 | 3 | 9,300 |
| Junction, N. | 6 | 1 | 0 | 5 | 13,232 |
| Keiner, N. | 9 | 6 | 0 | 3 | 25,354 |
| Keyesport | 10 | 6 | 0 | 4 | 12,037 |
| Lawrence | 39 | 16 | 0 | 23 | 68,941 |
| Livingston | 31 | 13 | 0 | 18 | 17,649 |
| Louden | 50 | 31 | 2 | 17 | 79,439 |
| Main | 16 | 11 | 0 | 5 | 23,973 |
| Maplegrove, E. | 13 | 8 | 0 | 5 | 42,131 |
| Marine | 4 | 2 | 0 | 2 | 7,860 |
| Maud Consol. | 57 | 30 | 0 | 27 | 132,941 |
| Maud, North Consol. | 137 | 110 | 0 | 27 | 360,401 |
| Maunie, N. | 6 | 5 | 0 | 1 | 15,807 |
| Maunie, S. | 4 | 2 | 0 | 2 | 8,184 |
| Mill Shoals | 35 | 26 | 0 | 9 | 115,659 |
| Mt. Carmel | 6 | 2 | 0 | 4 | 13,299 |
| New Harmony-Keensburg | 68 | 49 | 0 | 19 | 190,854 |

IT'S SIMPLE AND PRACTICAL

The Baker Junk Basket aids in removal of cuttings when drilling up dense but "drillable" materials such as cast iron, magnesium alloys, bronze and similar materials used in the Baker Cement Retainer and other drillable devices. ★ The Baker Junk Basket is positioned in the drilling string just above the bit. ★ Circulation fluid raises cuttings to the top of the basket, at which point the velocity is greatly reduced when it reaches the larger annulus (circulation area) due to the smaller diameter of the drill collar. ★ This sudden reduction in carrying (lifting) power of the circulation fluid causes the cuttings to drop into the basket where they are trapped. ★ See your BAKER (or Composite) CATALOG for details and specifications; or write to Baker Oil Tools, Inc., at Houston, Los Angeles, or New York.

BAKER JUNK BASKET

PRODUCT NO. 428

# MERCOID

OFFERS A LINE OF DEPENDABLE CONTROLS FOR VARIOUS INDUSTRIAL REQUIREMENTS

THE ONLY 100% MERCURY-SWITCH EQUIPPED CONTROLS THEY ASSURE ACCURACY, BETTER PERFORMANCE AND LONGER CONTROL LIFE

**Wherever the control of temperature, pressure, liquid level or mechanical operations are involved, Mercoid Controls and Switches assure a maximum in efficient and dependable performance.**

**PRESSURE CONTROLS**
Available for numerous industrial applications. They are equipped with Bourdon tubes and have outside double adjustments which eliminate guesswork when setting controls. Indicators show the operating range on the calibrated dial.

**REMOTE STEM TEMPERATURE CONTROLS**
For control of liquids or gases, such as air, oil, water, paraffin, glue or distillate vapors and many other industrial applications. A heavy gauge Bourdon tube is employed which is actuated by the expansion of volatile liquid within the remote bulb. The control is equipped with convenient outside double adjustments.

**LEVER ARM AND FLOAT CONTROLS**
Mercoid lever arm controls have a variety of applications where it is desired to mechanically open and close electric circuits. Mercoid float controls are used for maintaining fluid levels in tanks or for control of sump pumps or cellar drainers.

**LINE VOLTAGE THERMOSTAT**
The No. 855 thermostat is used for line voltage applications where it is desired to handle the full motor load directly without the use of a relay. Available with "on-off" manual switch for unit heater applications. These thermostats are used for both heating and refrigeration applications.

**TRANSFORMER-RELAYS**
Type V is a reliable low voltage mercury contact relay which also acts as a transformer inducing low voltage (24 volts) on the pilot circuit. There is no hum or chatter. Used for all types of automatic equipment. Available in various voltages, cycles and circuits.

**MERCURY SWITCHES**
Mercoid brand switches are noted for their superior operating qualities. Various types available.

*MERCOID CONTROLS are available in a variety of types for sensitive control of Pressure, Temperature and Lever actuation.*

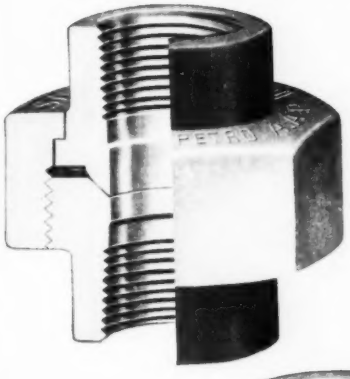
Write for further information.

THE MERCOID CORPORATION
4201 BELMONT AVE. ★ ★ CHICAGO, ILL.



# IT'S STARTLING

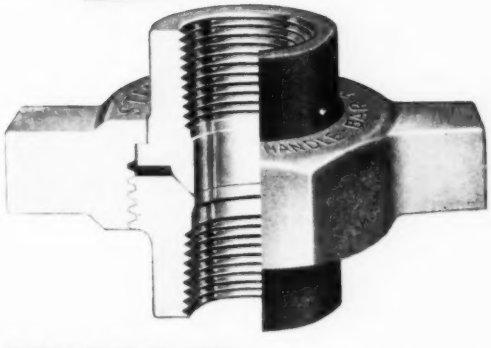
## THE SATISFACTION AND PEACE OF MIND YOU HAVE WITH "PETRO" AND "HANDLE-BAR" FORGED STEEL UNIONS



**PETRO**
REG. U. S. PAT. OFF.

FORGED STEEL UNIONS

"PETRO" steel to steel seats, permanently lubricated nut threads, machined and cold rolled seat. An all purpose union for general maintenance. Pressures to 3000 lbs. C.W.P. Temperatures to 1000°.



**HANDLE-BAR** FORGED STEEL UNIONS
REG. U. S. PAT. OFF.

"HANDLE-BAR" 4000 Test forged steel, steel to steel or bronze to bronze seats. Black or all rust-proof. 3000 C.W.P. priced in line with lowest price "HANDLE-BAR" type unions, regardless of test pressures.

Write dept. G for illustrated catalog or refer to listings in Chemical Engineering Catalog pages 980-981 and Composite Catalog pages 3082-3083.

ORDER BY TRADE NAME FROM YOUR LOCAL SUPPLY STORE

ORIGINATORS AND PIONEERS OF STEEL UNIONS SINCE 1913
**CLAYTON MARK & COMPANY**
1900 DEMPSTER STREET • EVANSTON, ILLINOIS

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| New Haven, N. | 6 | 1 | 0 | 5 | 14,136 |
| Olney Consol. | 8 | 5 | 0 | 3 | 24,389 |
| Olney, S. | 4 | 2 | 0 | 2 | 12,423 |
| Omaha | 14 | 7 | 1 | 6 | 15,977 |
| Parkersburg Consol. | 10 | 6 | 0 | 4 | 30,593 |
| Patoka | 4 | 3 | 0 | 1 | 6,348 |
| Phillipstown Consol. | 14 | 10 | 0 | 4 | 37,895 |
| Raccoon Lake | 23 | 13 | 0 | 10 | 45,157 |
| Raymond | 13 | 2 | 0 | 11 | 7,965 |
| Riffle | 8 | 4 | 0 | 4 | 22,140 |
| Roland | 6 | 1 | 0 | 5 | 15,416 |
| Ruark | 16 | 9 | 0 | 7 | 27,853 |
| Rural Hill | 26 | 15 | 0 | 11 | 84,212 |
| Sailor Springs Consol. | 96 | 73 | 0 | 23 | 265,974 |
| Saint Marie, W. | 4 | 1 | 0 | 3 | 11,461 |
| Salem | 13 | 12 | 0 | 1 | 26,967 |
| Shattuc | 20 | 13 | 0 | 7 | 65,121 |
| Stringtown | 8 | 7 | 0 | 1 | 24,265 |
| Sumpter | 4 | 2 | 0 | 2 | 11,470 |
| Thompsonville, North | *33 | 15 | 0 | 18 | 102,800 |
| Weaver | 4 | 4 | 0 | 0 | 8,270 |
| Westfield | 8 | 3 | 0 | 5 | 13,681 |
| Whittington | 12 | 7 | 0 | 5 | 30,823 |
| Whittington, W. | 6 | 5 | 0 | 1 | 16,737 |
| Williams | 10 | 8 | 0 | 2 | 26,474 |
| Woburn, S. | 8 | 8 | 0 | 0 | 24,603 |
| Zenith, S. | 19 | 13 | 0 | 6 | 57,432 |
| Miscellaneous | 168 | 68 | 0 | 100 | 356,229 |
| Total | 1,987 | 1,294 | 3 | 690 | 4,777,785 |

**INDIANA**

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 98 | 37 | 2 | 59 | 180,288 |
| February | 56 | 11 | 0 | 45 | 106,662 |
| March | 93 | 36 | 2 | 55 | 171,815 |
| April | 89 | 43 | 1 | 45 | 181,242 |
| May | 142 | 68 | 2 | 72 | 275,074 |
| June | 100 | 45 | 1 | 54 | 196,493 |
| July | 131 | 44 | 2 | 85 | 229,565 |
| August | 134 | 60 | 4 | 70 | 224,646 |
| September | 102 | 41 | 5 | 56 | 169,132 |
| October | 148 | 66 | 5 | 77 | 266,484 |
| November | 101 | 39 | 5 | 57 | 199,185 |
| December | 85 | 31 | 1 | 53 | 156,789 |
| Total | 1,279 | 521 | 30 | *728 | 2,357,375 |

*Includes 3 service wells.

**INDIANA**

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 44 | 7 | 0 | 37 | 86,620 |
| February | 33 | 1 | 0 | 32 | 62,905 |
| March | 34 | 4 | 0 | 30 | 63,878 |
| April | 30 | 5 | 1 | 24 | 61,661 |
| May | 41 | 4 | 0 | 37 | 80,317 |
| June | 37 | 6 | 0 | 31 | 77,618 |
| July | 54 | 4 | 0 | 50 | 98,083 |
| August | 44 | 9 | 1 | 34 | 77,002 |
| September | 34 | 3 | 2 | 29 | 55,865 |
| October | 46 | 8 | 0 | 38 | 97,007 |
| November | 48 | 7 | 3 | 38 | 96,243 |
| December | 26 | 4 | 0 | 22 | 47,277 |
| Total | 471 | 62 | 7 | 402 | 904,476 |

**INDIANA**

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 54 | 30 | 2 | 22 | 93,663 |
| February | 23 | 10 | 0 | 13 | 43,757 |
| March | 59 | 32 | 2 | 25 | 107,937 |
| April | 59 | 38 | 0 | 21 | 119,581 |
| May | 101 | 64 | 2 | 35 | 194,757 |
| June | 63 | 39 | 1 | 23 | 118,875 |
| July | 77 | 40 | 2 | *35 | 131,482 |
| August | 90 | 51 | 3 | 36 | 147,644 |
| September | 68 | 38 | 3 | 27 | 113,267 |
| October | 102 | 58 | 5 | 39 | 169,477 |
| November | 53 | 32 | 2 | 19 | 102,942 |
| December | 59 | 27 | 1 | 31 | 109,512 |
| Total | 808 | 459 | 23 | 326 | 1,452,899 |

**INDIANA**

**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Clay | 7 | 0 | 0 | 7 | 8,999 |
| Daviess | 13 | 0 | 0 | 13 | 22,332 |
| Gibson | 74 | 14 | 1 | 59 | 167,916 |
| Greene | 7 | 0 | 0 | 7 | 12,195 |
| Knox | 23 | 6 | 0 | 17 | 45,011 |
| Pike | 11 | 3 | 0 | 8 | 17,404 |
| Posey | 83 | 18 | 0 | 65 | 219,742 |
| Spencer | 19 | 2 | 1 | 16 | 22,330 |
| Sullivan | 77 | 6 | 2 | 69 | 147,361 |
| Vanderburgh | 23 | 4 | 0 | 19 | 53,729 |
| Vigo | 48 | 3 | 0 | 45 | 91,385 |
| Warrick | 10 | 1 | 0 | 9 | 17,707 |
| Miscellaneous | 76 | 5 | 3 | 68 | 78,365 |
| Total | 471 | 62 | 7 | 402 | 904,476 |

**INDIANA**

**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Beaman, East | 5 | 5 | 0 | 0 | 9,451 |
| Blackhawk | 11 | 9 | 0 | 2 | 21,327 |
| Caborn | 5 | 5 | 0 | 0 | 10,639 |
| College | 5 | 4 | 0 | 1 | 10,786 |
| Columbia | 8 | 4 | 0 | 4 | 10,157 |
| Dead River | 11 | 6 | 0 | 5 | 25,277 |
| Grafton | 8 | 6 | 0 | 2 | 20,499 |
| Griffin | 16 | 10 | 0 | 6 | 42,837 |
| Hazelton | 6 | 2 | 1 | 3 | 10,513 |
| Jeffries | 5 | 4 | 0 | 1 | 10,575 |
| Kolb | 6 | 2 | 0 | 4 | 11,623 |
| Lamott | 18 | 10 | 0 | 8 | 37,640 |
| Martin | 17 | 10 | 0 | 7 | 39,058 |
| Marts | 24 | 17 | 0 | 7 | 49,821 |
| Midway Gas | 5 | 0 | 2 | 3 | 5,159 |
| Mt. Carmel | 37 | 29 | 0 | 8 | 77,339 |
| Mt. Vernon | 28 | 14 | 0 | 14 | 62,600 |
| Mumford | 6 | 3 | 0 | 3 | 15,772 |
| New Harmony, South | 7 | 5 | 0 | 2 | 14,866 |
| Oaktown | 14 | 5 | 0 | 9 | 17,923 |
| Oatsville | 7 | 4 | 0 | 3 | 9,098 |
| Owensville, N. | 28 | 16 | 0 | 12 | 63,450 |
| Owensville, E. | 28 | 20 | 0 | 8 | 62,549 |
| Palestine Grove | 6 | 6 | 0 | 0 | 5,685 |
| Parker | 5 | 2 | 0 | 3 | 11,555 |
| Patoka, East | 5 | 2 | 0 | 3 | 9,322 |
| Peru | 18 | 11 | 0 | 7 | 16,691 |
| Piroque | 5 | 4 | 0 | 1 | 13,631 |
| Prairie Creek | 6 | 4 | 0 | 2 | 10,365 |
| Princeton, N. | 22 | 15 | 0 | 7 | 12,595 |
| Riley | 5 | 5 | 0 | 0 | 8,357 |
| Rochester | 21 | 15 | 0 | 6 | 37,657 |
| Siosi | 5 | 2 | 0 | 3 | 10,676 |
| Spencer | 21 | 16 | 0 | 5 | 61,474 |
| Springfield | 15 | 11 | 0 | 4 | 31,744 |
| Spring Hill | 14 | 12 | 0 | 2 | 24,428 |
| Stooker | 5 | 2 | 0 | 3 | 9,063 |
| St. Wendells, E. | 11 | 8 | 0 | 3 | 24,621 |
| Terre Haute, S. | 10 | 9 | 0 | 1 | 16,914 |
| Trenton | 40 | 18 | 11 | 11 | 40,327 |
| Union-Bowman | 90 | 49 | 2 | 39 | 115,465 |
| Vaughn | 37 | 27 | 0 | 10 | 53,086 |
| Veale | 6 | 5 | 0 | 1 | 6,821 |
| Miscellaneous | 156 | 46 | 7 | 103 | 263,463 |
| Total | 808 | 459 | 23 | 326 | 1,452,899 |

**OHIO**

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 121 | 38 | 37 | 46 | 298,974 |
| February | 80 | 26 | 21 | 33 | 190,137 |
| March | 76 | 20 | 20 | 36 | 188,615 |
| April | 94 | 28 | 29 | 37 | 209,542 |
| May | 88 | 32 | 20 | 36 | 181,597 |
| June | 65 | 22 | 19 | 24 | 133,470 |
| July | 102 | 42 | 29 | 31 | 186,155 |
| August | 88 | 24 | 27 | 37 | 136,529 |
| September | 78 | 24 | 18 | 36 | 161,762 |
| October | 114 | 32 | 39 | 43 | 236,069 |
| November | 98 | 38 | 25 | 35 | 205,575 |
| December | 80 | 23 | 24 | 33 | 158,070 |
| Total | 1,084 | 349 | 308 | *427 | 2,286,495 |

*Includes 40 service wells.

**OHIO**

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 4 | 0 | 0 | 4 | 14,715 |
| February | 3 | 0 | 1 | 2 | 9,963 |
| March | 7 | 0 | 0 | 7 | 29,755 |
| April | 3 | 0 | 1 | 2 | 9,151 |
| May | 4 | 0 | 0 | 4 | 17,380 |
| June | 1 | 0 | 0 | 1 | 1,945 |
| July | 2 | 0 | 0 | 2 | 5,008 |
| August | 3 | 0 | 0 | 3 | 7,394 |
| September | 3 | 0 | 0 | 3 | 10,943 |
| October | 3 | 1 | 0 | 2 | 9,445 |
| November | 2 | 0 | 0 | 2 | 4,781 |
| December | 2 | 1 | 0 | 1 | 8,371 |
| Total | 37 | 2 | 2 | 33 | 128,851 |

**OHIO**

**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 117 | 38 | 37 | 42 | 284,259 |
| February | 77 | 26 | 20 | 31 | 180,174 |
| March | 69 | 20 | 20 | 29 | 158,860 |
| April | 91 | 28 | 28 | 35 | 200,391 |
| May | 84 | 32 | 20 | 32 | 164,217 |
| June | 64 | 22 | 19 | 23 | 131,525 |
| July | 100 | 42 | 29 | 29 | 181,147 |
| August | 85 | 24 | 27 | 34 | 129,135 |
| September | 75 | 24 | 18 | 33 | 150,819 |
| October | 111 | 31 | 39 | 41 | 226,624 |
| November | 96 | 38 | 25 | 33 | 200,794 |
| December | 78 | 22 | 24 | 32 | 149,699 |
| Total | 1,047 | 347 | 306 | 394 | 2,157,644 |

**OHIO**

**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Ashland | 4 | 0 | 0 | 4 | 9,708 |
| Belmont | 2 | 0 | 0 | 2 | 3,759 |
| Carroll | 1 | 0 | 0 | 1 | 5,403 |
| Coshocton | 2 | 0 | 0 | 2 | 6,643 |
| Cuyahoga | 1 | 0 | 0 | 1 | 5,823 |
| Erie | 1 | 1 | 0 | 0 | 2,965 |
| Geauga | 1 | 0 | 0 | 1 | 3,815 |
| Holmes | 1 | 0 | 0 | 1 | 3,434 |
| Huron | 1 | 0 | 0 | 1 | 2,991 |
| Jefferson | 1 | 0 | 0 | 1 | 5,000 |
| Knox | 1 | 0 | 0 | 1 | 2,788 |
| Lorain | 4 | 0 | 1 | 3 | 9,560 |
| Mahoning | 1 | 0 | 0 | 1 | 5,406 |
| Medina | 1 | 0 | 0 | 1 | 3,013 |
| Meigs | 1 | 0 | 0 | 1 | 3,335 |
| Morgan | 2 | 0 | 0 | 2 | 9,727 |
| Muskingum | 1 | 0 | 0 | 1 | 4,660 |
| Noble | 1 | 0 | 0 | 1 | 3,749 |
| Pike | 1 | 0 | 0 | 1 | 3,430 |
| Stark | 5 | 0 | 0 | 5 | 24,360 |
| Tuscarawas | 2 | 0 | 1 | 1 | 4,721 |
| Vinton | 1 | 1 | 0 | 0 | 1,102 |
| Wayne | 1 | 0 | 0 | 1 | 3,459 |
| Total | 37 | 2 | 2 | 33 | 128,851 |

**OHIO**

**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Ashland | 242 | 82 | 74 | 86 | 442,417 |
| Brush Creek | 42 | 20 | 9 | 13 | 174,351 |
| Cambridge | 202 | 51 | 76 | 76 | 291,250 |
| Eastern | 17 | 2 | 3 | 12 | 22,118 |
| Lancaster | 162 | 69 | 26 | 67 | 417,260 |
| Mt. Vernon | 176 | 78 | 35 | 63 | 412,416 |
| Sandyville | 50 | 1 | 37 | 12 | 233,649 |
| Stewart | 156 | 44 | 47 | 65 | 164,183 |
| Total | 1,047 | 347 | 306 | *394 | 2,157,644 |

*Includes 40 service wells.

**EASTERN KENTUCKY**

**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 16 | 5 | 6 | 5 | 42,142 |
| February | 19 | 3 | 10 | 6 | 44,127 |
| March | 35 | 0 | 25 | 10 | 102,503 |
| April | 36 | 8 | 21 | 7 | 87,723 |
| May | 29 | 6 | 19 | 4 | 73,303 |
| June | 24 | 10 | 9 | 5 | 46,128 |
| July | 31 | 7 | 16 | 8 | 58,621 |
| August | 20 | 1 | 11 | 8 | 48,965 |
| September | 48 | 4 | 30 | 14 | 128,556 |
| October | 22 | 2 | 17 | 3 | 59,240 |
| November | 39 | 20 | 3 | 16 | 59,266 |
| December | 41 | 12 | 19 | 10 | 103,612 |
| Total | 360 | 78 | 186 | 96 | 854,186 |

**EASTERN KENTUCKY**

**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 2 | 0 | 0 | 2 | 5,353 |
| February | 3 | 0 | 0 | 3 | 7,976 |
| March | 2 | 0 | 0 | 2 | 4,075 |
| April | 1 | 0 | 0 | 1 | 1,430 |
| May | 2 | 0 | 0 | 2 | 4,611 |
| June | 2 | 0 | 0 | 2 | 3,659 |
| July | 6 | 1 | 0 | 5 | 8,616 |
| August | 4 | 0 | 0 | 4 | 5,389 |
| September | 5 | 0 | 0 | 5 | 17,271 |
| October | 1 | 0 | 0 | 1 | 1,717 |

# PUMPS

CENTRIFUGAL
RECIPROCATING

BUILDERS OF OUTSTANDING PUMPS
Since 1869

ESTABLISHED 1869

**DEAN BROTHERS PUMPS INC.**

INDIANAPOLIS IND.

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## EXHAUST PIPE COVER

Complete automatic year 'round protection for truck, tractor or combine. "Weathercap" Exhaust Pipe Cover opens and closes instantly with the engine exhaust at any position to 30° from vertical. Heavy duty construction includes a stainless steel hinge in the bushing, bolt of 41-40 cadmium plated steel and an aircraft type split locking nut to take up play due to wear. Rugged construction overall, yet lightweight. Developed as a result of many hundreds of hours of field testing to work under any conditions. Standard equipment on many new engines. Immediate delivery.

**C. R. TAYLOR & CO.** P. O. Box 221 Garden City, Kan.



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# PERMANENT AS THE EARTH ITSELF

It's the modern, high-efficiency, low-cost way to insulate underground piping. It's permanent—rot-proof, fire-proof, water-proof. No encasement, tunnels, joints, cracks—*Z-Crete is a strong, solid mass of insulating concrete that won't get out of line. Ample compressive strength to withstand heavy highway loads.

**Guaranteed Installation**—Furnished and installed by competent, authorized applicators. Rigid supervision, constant inspection during installation. On-the-job fabrication eliminates possibility of failures due to shipping and handling.

**Reasonable Cost**—Size or number of pipes makes no difference. *Z-Crete can insulate any pipe arrangement at reasonable cost.

**Ideal for Re-insulating**—Clean out your conduits and pour them solid with *Z-Crete insulation. Don't wait another winter—a few seasons' heat loss can equal the cost of a *Z-Crete reclamation.

There is a licensed *Z-Crete applicator near you. Drop us a card and we'll have him get in touch with you. No obligation.

Write for design data and other information to:

**Dept. OG-10**

**Z-CRETE DIVISION**

# ZONOLITE COMPANY

135 S. La Salle St. • CEntral 6-5885 • Chicago 3, Ill.

*Z-Crete is a registered trademark of Zonolite Company

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| November | 1 | 0 | 0 | 1 | 1,089 |
| December | 5 | 0 | 0 | 5 | 12,706 |
| Total | 34 | 1 | 0 | 33 | 73,392 |

### EASTERN KENTUCKY
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 14 | 5 | 6 | 3 | 36,789 |
| February | 16 | 3 | 10 | 3 | 36,151 |
| March | 33 | 0 | 25 | 8 | 98,428 |
| April | 35 | 8 | 21 | 6 | 86,293 |
| May | 27 | 6 | 19 | 2 | 68,692 |
| June | 22 | 10 | 9 | 3 | 42,469 |
| July | 25 | 6 | 16 | 3 | 50,005 |
| August | 16 | 1 | 11 | 4 | 43,576 |
| September | 43 | 4 | 30 | 9 | 111,285 |
| October | 21 | 2 | 17 | 2 | 57,523 |
| November | 38 | 20 | 3 | 15 | 58,177 |
| December | 36 | 12 | 19 | 5 | 90,906 |
| Total | 326 | 77 | 186 | 63 | 780,294 |

### EASTERN KENTUCKY
**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Breathitt | 3 | 1 | 0 | 2 | 6,587 |
| Carter | 3 | 0 | 0 | 3 | 4,642 |
| Elliott | 1 | 0 | 0 | 1 | 1,894 |
| Estill | 1 | 0 | 0 | 1 | 3,200 |
| Fleming | 1 | 0 | 0 | 1 | 850 |
| Greenup | 1 | 0 | 0 | 1 | 1,717 |
| Johnson | 1 | 0 | 0 | 1 | 2,225 |
| Lawrence | 2 | 0 | 0 | 2 | 5,022 |
| Lee | 1 | 0 | 0 | 1 | 3,384 |
| Magoffin | 1 | 0 | 0 | 1 | 2,524 |
| Menifee | 7 | 0 | 0 | 7 | 6,292 |
| Morgan | 4 | 0 | 0 | 4 | 10,689 |
| Owsley | 2 | 0 | 0 | 2 | 5,210 |
| Powell | 3 | 0 | 0 | 3 | 11,957 |
| Pulaski | 1 | 0 | 0 | 1 | 1,650 |
| Rowan | 1 | 0 | 0 | 1 | 1,010 |
| Wolfe | 1 | 0 | 0 | 1 | 5,009 |
| Total | 34 | 1 | 0 | 33 | 73,892 |

### EASTERN KENTUCKY
**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Bee Tree | 7 | 0 | 3 | 4 | 16,945 |
| Big Sandy | 199 | 2 | 162 | 35 | 595,762 |
| Big Sinking | 4 | 4 | 0 | 0 | 4,542 |
| Craft Creek | 3 | 0 | 2 | 1 | 7,630 |
| Fallsburg | 1 | 0 | 1 | 0 | 2,247 |
| Furnace (Deep) | 7 | 0 | 7 | 0 | 18,759 |
| Ida May | 1 | 1 | 0 | 0 | 1,478 |
| Indian Creek | 8 | 6 | 0 | 2 | 8,623 |
| Martha | 23 | 22 | 0 | 1 | 21,320 |
| Mine Fork | 3 | 3 | 0 | 0 | 3,246 |
| Olympia | 1 | 0 | 0 | 1 | 317 |
| Pilot (East) | 40 | 29 | 0 | 11 | 46,512 |
| Ross Creek | 10 | 6 | 0 | 4 | 10,918 |
| Royalton | 15 | 0 | 11 | 4 | 37,280 |
| Station Camp | 1 | 1 | 0 | 0 | 385 |
| Sturgeon | 1 | 1 | 0 | 0 | 1,213 |
| Van Cleve | 1 | 1 | 0 | 0 | 1,576 |
| Wolf Creek | 1 | 1 | 0 | 0 | 1,541 |
| Total | 326 | 77 | 186 | 63 | 780,294 |

### WESTERN KENTUCKY
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 42 | 25 | 0 | 17 | 50,665 |
| February | 37 | 20 | 0 | 17 | 47,170 |
| March | 39 | 25 | 0 | 14 | 60,997 |
| April | 38 | 23 | 0 | 15 | 55,308 |
| May | 47 | 22 | 2 | 23 | 68,514 |
| June | 48 | 20 | 1 | 27 | 71,330 |
| July | 49 | 24 | 0 | 25 | 67,472 |
| August | 71 | 31 | 0 | 40 | 105,469 |
| September | 55 | 27 | 2 | 26 | 84,635 |
| October | 88 | 49 | 2 | 37 | 139,297 |
| November | 79 | 37 | 0 | 42 | 122,351 |
| December | 61 | 43 | 0 | 18 | 98,878 |
| Total | 654 | 346 | 7 | *301 | 970,086 |

*Incl. 4 service wells.

### WESTERN KENTUCKY
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 3 | 1 | 0 | 2 | 5,811 |
| February | 6 | 1 | 0 | 5 | 11,003 |
| March | 3 | 0 | 0 | 3 | 9,939 |
| April | 7 | 3 | 0 | 4 | 11,022 |
| May | 9 | 1 | 0 | 8 | 17,457 |
| June | 14 | 1 | 1 | 12 | 28,830 |
| July | 16 | 2 | 0 | 14 | 28,003 |
| August | 21 | 3 | 0 | 18 | 31,666 |
| September | 16 | 5 | 0 | 11 | 30,813 |
| October | 14 | 5 | 1 | 8 | 28,086 |
| November | 18 | 4 | 0 | 14 | 30,726 |
| December | 8 | 3 | 0 | 5 | 15,164 |
| Total | 135 | 29 | 2 | 104 | 248,520 |

### WESTERN KENTUCKY
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 39 | 24 | 0 | 15 | 44,854 |
| February | 31 | 19 | 0 | 12 | 36,167 |
| March | 36 | 25 | 0 | 11 | 51,038 |
| April | 31 | 20 | 0 | 11 | 44,286 |
| May | 38 | 21 | 2 | 15 | 49,057 |
| June | 34 | 19 | 0 | 15 | 42,500 |
| July | 33 | 22 | 0 | 11 | 39,469 |
| August | 50 | 28 | 0 | 22 | 73,803 |
| September | 39 | 22 | 2 | 15 | 53,822 |
| October | 74 | 44 | 1 | 29 | 111,211 |
| November | 61 | 33 | 0 | 28 | 91,625 |
| December | 53 | 40 | 0 | 13 | 83,714 |
| Total | 519 | 317 | 5 | 197 | 721,566 |

### WESTERN KENTUCKY
**Wildcat Completions by Counties**

| County— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Daviess | 45 | 8 | 1 | 36 | 66,726 |
| Grayson | 4 | 0 | 0 | 4 | 2,175 |
| Hancock | 7 | 1 | 0 | 6 | 6,905 |
| Henderson | 25 | 5 | 0 | 20 | 56,823 |
| McLean | 9 | 3 | 0 | 6 | 17,178 |
| Ohio | 7 | 1 | 1 | 5 | 6,868 |
| Union | 25 | 10 | 0 | 15 | 60,295 |
| Webster | 8 | 1 | 0 | 7 | 22,903 |
| Miscellaneous | 5 | 0 | 0 | 5 | 8,647 |
| Total | 135 | 29 | 2 | 104 | 248,520 |

### WESTERN KENTUCKY
**Development Completions by Fields**

| Field— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| Bell's Run | 12 | 7 | 0 | 5 | 10,603 |
| Birk City | 32 | 22 | 0 | 10 | 43,593 |
| Buford | 12 | 5 | 0 | 7 | 10,819 |
| Caney Mound & E. | 23 | 18 | 0 | 5 | 58,015 |
| Euterpe & N. | 11 | 9 | 0 | 2 | 19,413 |
| Fordsville | 34 | 13 | 0 | 21 | 20,297 |
| Geneva | 6 | 3 | 0 | 3 | 12,472 |
| Glenville | 35 | 26 | 0 | 9 | 64,598 |
| Griffith | 101 | 77 | 4 | 20 | 113,816 |
| Guffie | 28 | 23 | 0 | 5 | 54,648 |
| Hebbardsville | 7 | 5 | 0 | 2 | 10,539 |
| Morganfield, S. | 17 | 16 | 0 | 1 | 39,930 |
| Niagra | 9 | 4 | 0 | 5 | 8,433 |
| Pellville | 51 | 32 | 1 | 18 | 47,134 |
| Pleasant Ridge | 9 | 4 | 0 | 5 | 9,505 |
| Poole | 7 | 2 | 0 | 5 | 13,162 |
| Uniontown | 6 | 4 | 0 | 2 | 14,200 |
| Waitman | 24 | 17 | 0 | 7 | 26,346 |
| Wyman | 5 | 1 | 0 | 4 | 11,742 |
| Miscellaneous | 90 | 29 | 0 | 61 | 132,301 |
| Total | 519 | 317 | 5 | 197 | 721,566 |

### MARYLAND
**Wildcat Completions by Months***

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| November | 1 | 0 | 1 | 0 | 4,910 |
| Total | 1 | 0 | 1 | 0 | 4,910 |

*No development completions.

### NEW YORK
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | *Dry | Footage |
|---|---|---|---|---|---|
| January | 138 | 69 | 0 | 69 | 197,000 |
| February | 112 | 56 | 0 | 56 | 161,000 |
| March | 81 | 41 | 0 | 40 | 117,000 |
| April | 70 | 35 | 0 | 35 | 102,000 |
| May | 35 | 18 | 0 | 17 | 52,000 |
| June | 35 | 18 | 0 | 17 | 51,000 |
| July | 65 | 33 | 0 | 32 | 93,000 |
| August | 74 | 37 | 0 | 37 | 106,000 |
| September | 60 | 31 | 0 | 29 | 85,000 |
| October | 60 | 31 | 0 | 29 | 85,000 |
| November | 82 | 42 | 0 | 40 | 116,000 |
| December | 70 | 35 | 0 | 35 | 100,000 |
| Total | 882 | 446 | 0 | 436 | 1,265,000 |

*Includes 436 service wells.

### PENNSYLVANIA
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 210 | 102 | 18 | 90 | 346,068 |
| February | 208 | 107 | 17 | 84 | 336,752 |
| March | 162 | 80 | 13 | 69 | 265,273 |
| April | 166 | 84 | 14 | 68 | 272,444 |
| May | 132 | 65 | 14 | 53 | 222,600 |
| June | 185 | 97 | 22 | 66 | 299,596 |
| July | 119 | 59 | 18 | 42 | 218,183 |
| August | 172 | 86 | 21 | 65 | 287,784 |
| September | 161 | 77 | 25 | 59 | 266,055 |
| October | 155 | 78 | 20 | 57 | 240,957 |
| November | 137 | 68 | 14 | 55 | 125,843 |
| December | 113 | 53 | 19 | 41 | 199,631 |
| Total | 1,920 | 956 | 215 | *749 | 3,081,186 |

*Includes 697 service wells.

### PENNSYLVANIA
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| February | 1 | 0 | 0 | 1 | 9,369 |
| March | 1 | 0 | 1 | 0 | 5,262 |
| July | 2 | 0 | 2 | 0 | 18,098 |
| August | 1 | 0 | 1 | 0 | 8,552 |
| November | 1 | 0 | 0 | 1 | 3,276 |
| Total | 6 | 0 | 4 | 2 | 44,557 |

### PENNSYLVANIA
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 210 | 102 | 18 | 90 | 346,068 |
| February | 207 | 107 | 17 | 83 | 327,383 |
| March | 161 | 80 | 12 | 69 | 260,011 |
| April | 166 | 84 | 14 | 68 | 272,444 |
| May | 132 | 65 | 14 | 53 | 222,600 |
| June | 185 | 97 | 22 | 66 | 299,596 |
| July | 117 | 59 | 16 | 42 | 200,085 |
| August | 171 | 86 | 20 | 65 | 279,232 |
| September | 161 | 77 | 25 | 59 | 266,055 |
| October | 155 | 78 | 20 | 57 | 240,957 |
| November | 136 | 68 | 14 | 54 | 122,567 |
| December | 113 | 53 | 19 | 41 | 199,631 |
| Total | 1,914 | 956 | 211 | 747 | 3,036,629 |

### ALBERTA, CANADA
**Wildcat Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 16 | 7 | 2 | 7 | 63,528 |
| February | 12 | 1 | 1 | 10 | 66,486 |
| March | 18 | 2 | 1 | 15 | 71,063 |
| April | 17 | 5 | 0 | 12 | 76,481 |
| May | 26 | 2 | 1 | 23 | 91,464 |
| June | 28 | 2 | 0 | 26 | 112,927 |
| July | 25 | 2 | 4 | 19 | 107,078 |
| August | 13 | 1 | 3 | 9 | 60,836 |
| September | 27 | 0 | 2 | 25 | 131,346 |
| October | 20 | 1 | 5 | 14 | 94,964 |
| November | 16 | 2 | 1 | 13 | 72,408 |
| December | 26 | 2 | 2 | 22 | 124,893 |
| Total | 244 | 27 | 22 | 195 | 1,073,474 |

### ALBERTA, CANADA
**Development Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 21 | 18 | 0 | 3 | 103,462 |
| February | 19 | 19 | 0 | 0 | 83,033 |
| March | 40 | 40 | 0 | 0 | 159,802 |
| April | 59 | 56 | 1 | 2 | 209,840 |
| May | 47 | 45 | 0 | 2 | 185,502 |
| June | 54 | 48 | 4 | 2 | 217,950 |
| July | 68 | 63 | 4 | 1 | 231,056 |
| August | 57 | 52 | 1 | 4 | 198,005 |
| September | 61 | 55 | 1 | 5 | 222,051 |
| October | 54 | 49 | 1 | 4 | 191,480 |
| November | 49 | 48 | 0 | 1 | 189,477 |
| December | 47 | 45 | 0 | 2 | 188,020 |
| Total | 576 | 538 | 12 | 26 | 2,179,678 |

### ALBERTA, CANADA
**Total Completions by Months**

| Month— | Comp. | Oil | Gas | Dry | Footage |
|---|---|---|---|---|---|
| January | 37 | 25 | 2 | 10 | 166,990 |
| February | 31 | 20 | 1 | 10 | 149,519 |
| March | 58 | 42 | 1 | 15 | 230,865 |
| April | 76 | 61 | 1 | 14 | 286,321 |
| May | 73 | 47 | 1 | 25 | 276,966 |
| June | 82 | 50 | 4 | 28 | 330,877 |
| July | 93 | 65 | 8 | 20 | 338,134 |
| August | 70 | 53 | 4 | 13 | 258,841 |
| September | 88 | 55 | 3 | 30 | 353,397 |
| October | 74 | 50 | 6 | 18 | 286,444 |
| November | 65 | 50 | 1 | 14 | 261,885 |
| December | 73 | 47 | 2 | 24 | 312,913 |
| Total | 820 | 565 | 34 | 221 | 3,253,152 |

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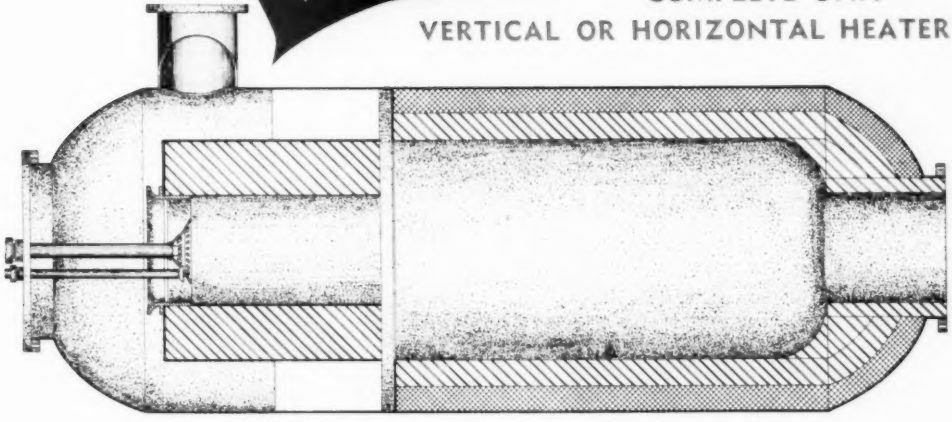

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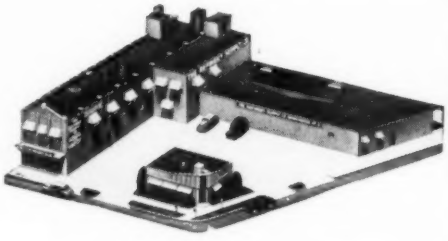

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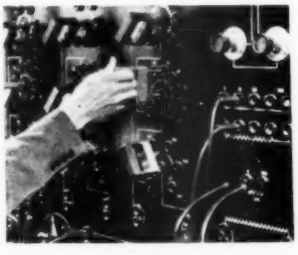

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# QUESTIONS on TECHNOLOGY

**by W. L. Nelson**
Consulting Engineer

**This department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in various phases of plant operation, as well as those connected with the marketing and utilization of petroleum products. Readers are invited to submit their problems to W. L. Nelson, technical editor. Inquiries must be signed, but only the initials will be printed.**

## Correction of Heat of Decomposition in Catalytic Cracking

NOTE.—Table 2 of the Questions on Technology page of November 10, 1949, contains data that are incorrect. The data of Dart and Oblad were analyzed incorrectly. Inasmuch as the Dart and Oblad paper is the only literature on this important subject, we have asked J. C. Dart to describe his method.

Table 2 of our answer of November 10, 1949, should read as shown in the corrected table. Likewise, the average of the Dart and Oblad data is not 268, as stated in the November 10 issue.

**TABLE 2—COMPUTED HEATS OF DECOMPOSITION**

| Source— | Conversion, per cent | Heat of decomposition, B.t.u. per lb. light products* |
|---|---|---|
| 1. Grote and Olsen | 59.1 | 392 |
| 2. Grote and Olsen | 59.1 | 273 |
| 3. Grote and Olsen | 59.1 | 221 |
| 4. Grote and Olsen | 59.1 | 275 |
| 5. Grote and Olsen | 59.1 | 399 |
| 6. Dart and Oblad | 36.0 | 299 |
| 7. Dart and Oblad | 47.4 | 254 |
| 8. Dart and Oblad | 51.8 | 245 |
| 9. Dart and Oblad | 61.8 | 203 |
| 10. Dart and Oblad | 66.3 | 145 |
| 11. Dart and Oblad | 70.0 | 142 |
| 12. Dart and Oblad | 81.5 | 46 |
| 13. Newton et al | | 90-200 |
| 14. Newton et al | | 112 |

*Gas, B-B cut, and gasoline.

"The heat of reaction in catalytic cracking is a function of the composition of the charge stock, cracking temperature, and conversion. The data of Dart and Oblad show that cracking temperature over the range of 850 -900 F. has only a slight effect on the heat of cracking. The most important factor to be considered in estimating the heat of cracking for a given charge stock is the conversion level. The effect of conversion on the heat of cracking as a function of the yield of light products is shown in the above Table 2.

"The yield of light products for a given conversion in fluid catalytic cracking can be estimated from the data of Olsen and Sterba (Chem. Eng. Progress, 45, 692 [1949]) and for moving-bed catalytic cracking can be estimated from the data of Schall, Dart and Kirkbride (Chem. Eng. Progress 46 [January 1950]). The heat of cracking in B.t.u. lb. of light products multiplied by the weight per cent of light products gives the heat of cracking per unit weight of charge at the desired conversion level. Since the data of Dart and Oblad were obtained on a heavy East Texas gas oil, it is not known just how widely these data can be applied to other charge stocks. However, it is felt that the higher the hydrogen-carbon ratio of the charge the greater would be the endothermic heat of cracking at a given conversion level and cracking temperature. It is believed, however, that the extreme of the data obtained by Dart and Oblad would not be widely different for other charge stocks.

"A real contribution to the literature could be made by having additional work on other charge stocks so that a correlation could be obtained between the heat of cracking and some characteristic of the charge such as characterization factor. Until this is done the values given can be used as an estimate for obtaining the heat of cracking on other charge stocks."

## How Test Fuel-Oil Additives?

**What methods of test are used for fuel-oil additives?—S. T. F.**

This question is a continuation of an item in the issue of December 8, 1949, entitled "Fuel-Oil Additives."

Although it would be interesting to conduct a chemical analysis to determine the chemical agents involved, such an analysis would be costly and time consuming, and hence, more practical tests should be employed. This is particularly important because two elements must both be right, if the treatment is to be successful. We refer to the fact that the additive and the oil must be compatible with one another, or more simply, the additive must be the right one for the particular fuel oil. Thus, practical tests of the behavior of the additive when admixed with the oil or the sludge from it, are called for. Some additives have caused the formation of precipitates or sludge-like deposits when used with certain oils and hence only a direct test of the usefulness of an additive can be trusted. After laboratory testing, the final usefulness can be determined at little cost in plant-scale tests.

Among the laboratory tests that can be conducted are:

1. Solubility in oil.
2. Solubility in water.
3. Heating the additives and admixtures of it to the fuel-tank temperature, and to a higher temperature to insure that the steam coils are not fouled.
4. Cooling the additives or admixtures of it to the lowest temperature expected.
5. Flash point of mix.
6. Pour point of mix.
7. Basic sediment and water test of the treated oil, compared with the untreated oil.
8. Basic sediment and water test using the additive rather than benzol to detect precipitates.
9. Emulsification tests on treated and untreated oils.
10. Emulsification tests on treated and untreated tank sludge.
11. Solubility tests on treated and untreated tank sludge.

Finally, and if the laboratory tests indicate compatibility of the additive and oil, as well as other satisfactory characteristics, combustion tests should always be conducted. These should be conducted with the regular plant workmen (operators, maintenance, and inspection) as well as the development or laboratory staff, because only the plant workmen can know what the past performance of the burners and fuel system has been. In the extreme, complete combustion tests can be conducted before and after long treatment. These would involve the measuring of sludge accumulations, boiler or still efficiency, corrosion measurements, etc.

It should be noted that once an additive proves to be advantageous, the next batch of oil may be different, and quite unsatisfactory results may then be encountered.

## Reboiled Absorber

**What is meant by a reboiled absorber?—M. C. P.**

An absorber retains some of each of the hydrocarbons that compose the gas feed—large amounts of the high-boiling ones (those of low vapor pressure), but also small amounts of the low-boiling ones that are not desired. Thus, in using the right amount of absorption oil for retaining all of the butanes, some propane is inadvertently retained as well as some ethane.

To some extent the ethane and propane can be eliminated if the rich absorption oil is heated before it flows from the bottom of the absorber, and such an operation is a "reboiled absorber." Various names are employed depending on the purpose of the operation, such as absorber-fractionator, fractionation-absorber, absorber-strippers, or reboiled absorber. Although such operations are not common, they are not new because Burrell-Mase Co. installed such equipment in the Mid-Continent region as early as 1934.

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| Croloy 3-M | (5% Cr, ½% Mo) |
| Croloy 5 | (5% Cr, 1½% Mo, |
| Croloy 5-Si | (5% Cr, ½% Mo, |
| Croloy 5-Ti | ½% Ti) |
| Croloy 7 | (7% Cr, ½% Mo) |
| Croloy 9-M | (9% Cr, 1% Mo) |
| Croloy 18-8-S | (18% Cr, 8% Ni) |
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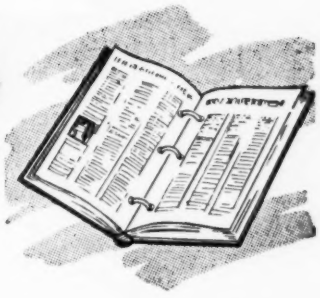

# Tank Gaging as Related To Loss Control

ACCURATE measurement of stocks in storage is a basic item in the organization of a loss-control program. This requires correction of existing volume gage tables and gaging methods. Measurement of tanks used for shipping or receiving purposes is as a rule checked first, although this may have been done already, possibly by a petroleum inspection company employed to certify shipments.

The next step is to review routine gaging of intrarefinery storage. Here past experience may show that errors in the ordinary methods of gaging cone-roof tanks will cancel out over sufficiently long periods of time. Nevertheless irregularities in routine gaging may affect the refinery-yield statement and so complicate loss-control accounting. A further complication may arise in the existence of additive errors in the gaging of floating-roof tanks.

### Gaging Devices

The large variety of gaging devices on the market have been classified into the following groups:

1. Ordinary methods used for atmospheric and low-pressure storage including (a) pole or tape gaging by hand, semiautomatic gastight tape gage, (b) the float-operated automatics, the sealed float or the "surface-tension" disk float. (Note also possible use of the electronic float-gamma ray method for measuring liquid level—although this cannot be described as an ordinary method.)

2. Methods applicable to pressure storage including (a) gage glasses (b) change-of-state devices such as slip-tube, rotary gage or fixed-up tube (c) pressure differential method.

3. Remote reading devices may be classified as a group in themselves and divided into those which are powered electrically and those operated pneumatically.

Fixed-roof tanks are commonly gaged by the innage or outage methods of group (1) as are also floating-roof tanks, with correction for floating-roof displacement in the latter. Breather and balloon-roof tanks are ordinarily gaged by the innage method with correction for different liquid level in gaging well (Fig. 1).

The vaportight semiautomatic hand gage or sealed float gage may be specified for lifter or expansion-roof tanks and tanks which are part of a vapor-saving system. Approximate vapor volume held at any one time by variable vapor space devices employing a flexible membrane (such as the "Vapor-sphere") may be shown approximately by means of a cable attached to the flexible membrane and actuating an indicator. Gaging of spheroids, hemispheroids, and spheres may also be done by semiautomatic gastight gage or sealed float, or some of the alternative methods listed above. The slip-tube gage is often used for tanks holding liquids such as L.P.G. under pressure.

Remote-reading units are higher in initial cost but have a number of advantages in gaging intrarefinery storage and may be used with the fixed-roof as well as other types of storage tanks.

Special problems in accurate gaging and preparation of volume gage tables may be encountered with floating-roof tanks, particularly those with pan-type roofs, as compared to cone-roof storage. The conditions chiefly responsible are friction between sealing ring shoes and tank shell and tilt and distortion of the roof. These may be interrelated in a complex manner and may affect accuracy of measurement in different degrees as between one installation and another. The gaging of floating-roof tanks will be discussed in the next number of The Refiner's Notebook.

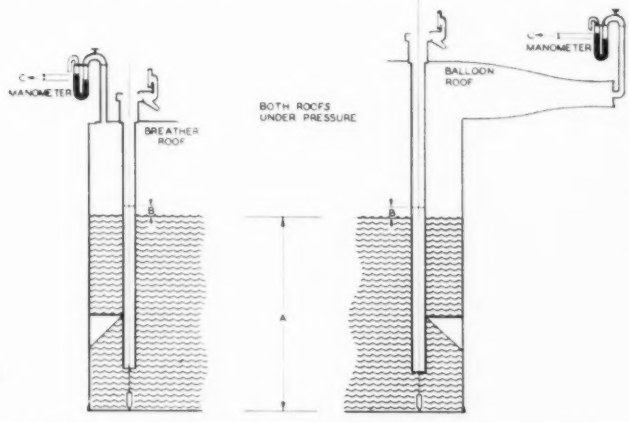


*Fig. 1—GAGING BREATHER AND BALLOON ROOF TANKS. Gage reading is taken from tank bottom to oil level in gage pipe. Correction is made by subtracting (roof under pressure) or adding (vacuum) the manometer reading C to obtain actual depth of liquid in tank A.*

#### References

1. Keane, C. C., Gaging Methods in Atmospheric and Low-Pressure Storage, The Oil and Gas Journal, November 15, 1947, p. 285.

2. Mattocks, E. O., Gaging Methods and Devices for Pressure Storage, The Oil and Gas Journal, November 29, 1947, p. 62.

3. Packard, H. C., Tank Volume Determination . . . Theory and Practice, Shell Oil Co. publication, 1946.

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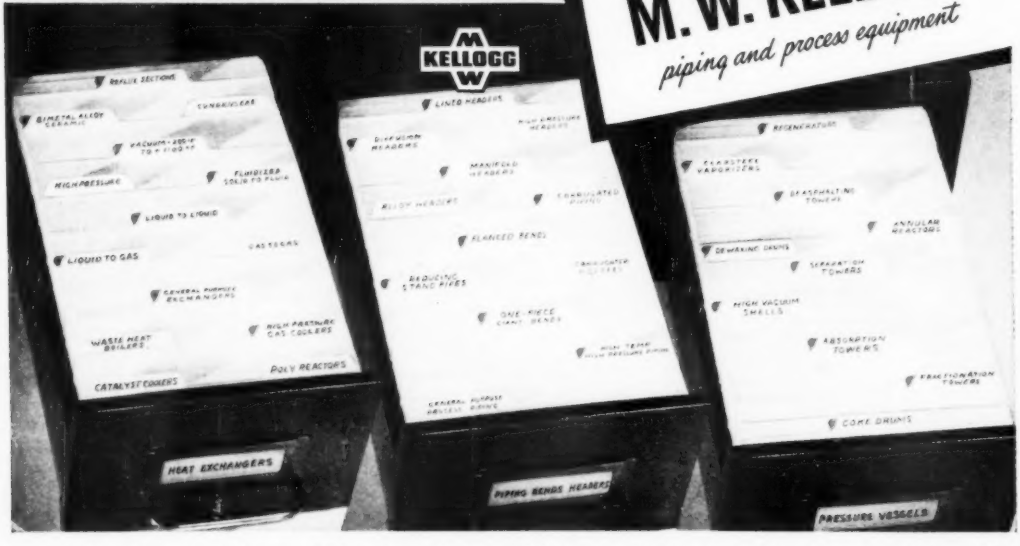


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# REFINING

## Refining, Chemical Project Planned at Corpus Christi

Edwin Singer, president of Pontiac Refining Corp., and C. R. Williams, vice president of the Chicago Corp., announced last week plans for a $15,000,000 chemical and refining operation in the Corpus Christi, Tex., area.

The two firms were successful bidders on the Great Southern Corp.'s 100-octane gasoline plant recently offered for sale by the General Services Administration as a Government surplus war plant.

Acquisition of the plant, on a bid of $756,000, was responsible for the decision to proceed immediately with the initial phase of a program which has been under consideration by the two companies for a number of years, the announcement said.

The firm's present plans call for an annual output of 10,000,000 lb. of ethylene oxide, 60,000,000 lb. of ethylene glycol, and 5,000 bbl. of gasoline daily.

## Socony Lets Contracts for Two Modified Cat Crackers

Contracts for construction of two new modified Thermofor catalytic cracking units were let recently by Socony-Vacuum Oil Co., Inc. Plans for the units were first announced earlier this month.

Foster Wheeler Corp. has the contract for construction of the 15,000-bbl. T.C.C. unit at the company's 26,000-bbl. Brooklyn refinery in New York. A similar unit will be installed at the 22,000-bbl. Atlas Works of Socony-Vacuum at Buffalo.

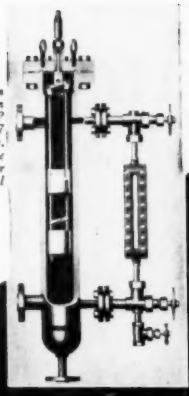
Of the seven new T.C.C. units to be built this year at five Socony-Vacuum refineries, two contracts remain to be let. They concern a third unit at the Beaumont, Tex., refinery of affiliated Magnolia Petroleum Co., and Socony-Vacuum's Augusta, Kans., refinery. All seven new units will replace existing Houdry fixed-bed units rated at about 10,000 bbl. capacity each for a net increase in cracking capacity of about 35,000 bbl. daily.

## Refinery-Safety Manual Is Published by Simmonds

A comprehensive manual of refinery-safety information has been published by John G. Simmonds & Co., Inc., oil-insurance and underwriters of New York City. Entitled "Safety in the Petroleum Refining and Related Industries," the book comprises 425 pages, containing 238 photographs, charts, flow diagrams, and other illustrations.

Prepared for Simmonds & Co. by George Armistead, Jr., consulting chemical engineer, Washington, D. C., the manual is available only through that company.

***"LAUNCHED" LIKE A SHIP.**—Shown above is the world's largest shop-made pressure vessel, a 105-ton regenerator for Shell Oil Co.'s Montreal East refinery, sliding down the "ways" like a ship at the Canadian Vickers, Ltd., yards in Montreal. A 25,000-ton floating dry dock was used to transport the regenerator 5 miles down the St. Lawrence River to Montreal East.*

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## Series of Interpretations On Design Code Adopted

The American Petroleum Institute-American Society of Mechanical Engineers committee on unfired pressure vessels has adopted a series of interpretations of the A.P.I.-A.S.M.E. Code for the design, construction, inspection, and repair of unfired pressure vessels for petroleum liquids and gases, according to W. T. Gunn, director of the A.P.I. Division of Refining, and secretary to the committee. The interpretations follow:

**Interpretations of A.P.I.-A.S.M.E. Code for Unfired Pressure Vessels**

In replacement of the note on page 6 of the 1943 edition of the A.P.I.-A.S.M.E. Code, the following active interpretations (cases) of Section VIII of the A.S.M.E. Boiler-Construction Code are acceptable:

Pending the formulation and adoption of a section of the A.P.I.-A.S.M.E. Code to provide additional rules for the use of high alloy steels, as well as for the use of the high-strength steels (A.S.T.M. A-300, A-301, and A-302 are not included in this group) the following approved A.S.M.E. cases are listed by number and descriptive title. In applying these cases, the A.P.I.-A.S.M.E. rules for design and inspection, including radiographic examination except where the latter is required in the case for the detection of cracks in air-hardening materials, may be followed. The rules governing fabrication shall be those given in the A.S.M.E. Code except as modified below. For materials covered by A.S.M.E. cases only, and for which stress values are not shown in Table U-2 in the A.S.M.E. Code, the factor of 1.25 may be applied to the stress values given in the case unless therein specifically prohibited.

In some of the A.S.M.E. cases the heat treatments prescribed, subject to limiting thicknesses for specific materials and service temperatures, are only intended to obtain most favorable corrosion resistance. In cases where heat treatment is prescribed for the purpose of increasing corrosion resistance, the heat treatment is not mandatory under the A.P.I.-A.S.M.E. Code if no corrosion is expected. Heat treatment is mandatory under the A.P.I.-A.S.M.E. Code, however, when prescribed in the A.S.M.E. cases for the purpose of stress relieving air-hardening materials that have been welded.

Vessels of high-alloy steels may be intended for liquids and vapors corrosive to most plain-carbon steels listed in Table 1 of the A.P.I.-A.S.M.E. Code. The corrosion resistance and the allowance for loss due to corrosion are not specifically covered in the A.S.M.E. cases. It is recommended, therefore, that prospective users of high-alloy steel vessels assure themselves, by appropriate tests or by reference to available authentic data, that the alloy steel selected and its treatment before and after fabrication are suitable for the service intended.

When a case is reopened by the A.S.M.E. Boiler-Code committee, the latest form of that case shall govern its application under the A.P.I.-A.S.M.E. Code. When a case is annulled because its permissive provisions are withdrawn, it is automatically cancelled under the A.P.I.-A.S.M.E. Code.

Case No. 896.—Fusion-welded pressure vessels of integrally clad material conforming to A.S.T.M. Specifications A-263, A-264, and A-265. In conformation of a ruling made by the A.P.I.-A.S.M.E. committee in 1943, the full thickness of the composite plate may be used in the design calculations, notwithstanding the provisions to the contrary in W-308 (see Case No. 1,078 for vessels with applied linings).

For temperatures up to and including 900 F., and for base materials listed in Table 1 of the A.P.I.-A.S.M.E. Code, the allowable stress shall be that given in Table 1 for the base material. For higher temperatures, or for base materials not listed in Table 1, the allowable stress shall be 1.25 times that given in Table U-2 of the A.S.M.E. Code.

Case No. 897.—Unfired pressure vessels of chrome-nickel steels as such, or alloyed with columbium, titanium, or molybdenum conforming to A.S.T.M. specifications.

Case No. 898.—Unfired pressure vessels subject to external pressure using stainless steels that are covered by Case No. 897.

Case No. 941.—Welded unfired pressure vessels of high-tensile manganese molybdenum steel conforming to A.S.T.M. Specification A-204, modified.

Case No. 987.—Use of forged flanges for high-temperature service, especially adaptable to welded construction conforming to A.S.T.M. Specification A-182, modified.

Case No. 989.—Welded unfired pressure vessels of chromium steels conforming to A.S.T.M. Specification A-240, Grade A (Type 410 modified), Grade B, and Grade D (Type 430 modified), for sheets and plates; to A.S.T.M. Specification A-182, Grade F6 (Type 410) and Grade D (type 430 modified), for forgings; to A.S.T.M. Specification A-158, Grade P6 (Type 410), for pipe; to A.S.T.M. Specification A-221, Grade A (Type 410) for castings.

Case No. 1,030.—Use of centrifugal castings of 29 per cent chromium and 9 per cent nickel-alloy steel for the main shell and nozzles of welded unfired pressure vessels, when the material complies with A.S.T.M. Specification A-222, Class C modified.

Case No. 1,078.—Fusion-welded pressure vessels with applied linings (see Case No. 896 for integrally clad vessels).

Case No. 1,080.—Procedure qualification for steel under A.S.T.M. Specification A-299.

The A.P.I.-A.S.M.E. committee on unfired pressure vessels has also approved A.S.A. Supplement No. 1 (B16c6-1949) to B-6-1939 for "Service Pressure Ratings for Steel Pipe Flanges and Flanged Fittings," with the modification that all ratings at service temperatures up to and including 1,000° F., shall apply to steam as well as to oil and gas.

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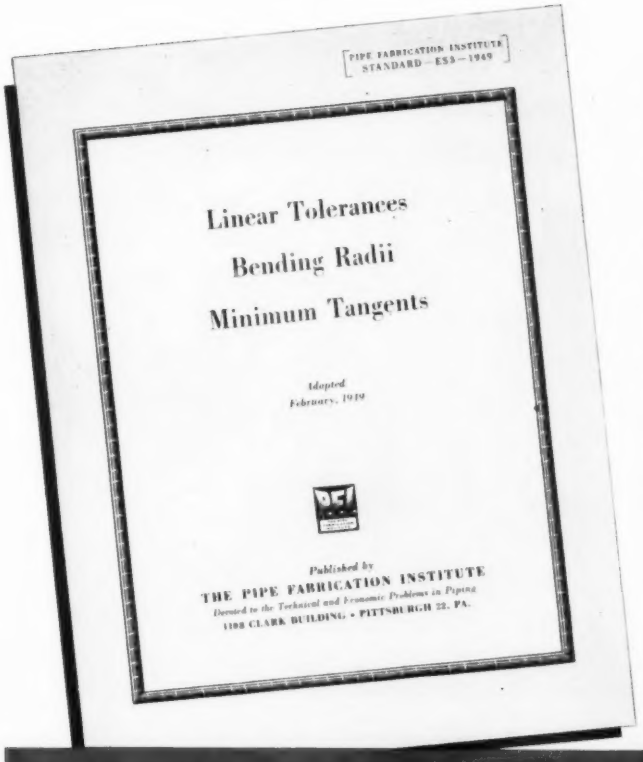


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The designer of prefabricated piping will find this PFI Standard very helpful in his work. Standard ES3 has to do with general shop fabrication standards that have been adopted by the PFI after much study of the economic factors as well as technical and manufacturing questions. This Standard will save time for the designing engineer and help assure piping that is in accordance with modern shop practices.

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Call in your specifications. We can fill to your order for sizes ranging from 20" through 36" in sections 30' to 31½' long.

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# PIPE LINES

## T. A. Hester Named Head Of Oklahoma Contracting

With a new line up of officers familiar to the petroleum industry, announcement is made of the reorganization of Oklahoma Contracting Co., Inc., of Dallas. T. A. Hester is now president of the new Oklahoma Contracting Corp.

Other officers are: T. R. Jones, Paul R. Halbert, M. W. Staples, J. R. Horrigan, Ben O. Law, and W. H. Law. Offices will be maintained in the Mercantile Bank Building, Dallas, and the Commerce Building, Houston.

All of the principals of the new Oklahoma Contracting Corp. have long been connected with the oil and gas pipe-line construction business.

R. J. O'Connell and N. K. McFarland, officers of the former Oklahoma Contracting Co., Inc., are now associated as partners in the Jones Simpson Drilling Co.

The new Oklahoma Contracting Corp. is prepared to operate six big-inch and one 12-in. spread.

At this time the firm has two spreads in the field, one working between the Red River and Sharon Station laying 63 miles of 20-in. under a subcontract from N. A. Saigh Co. for Texas Gas Transmission Corp. The other is operating under L. Visentine, who has succeeded Panama Shifflet as spreadman for the 23-mile 30-in. Elizabeth, N. J.-Hudson River section for Transcontinental Gas Pipe Line Corp. with a field office at Edgewater, N. J.

About April 15 Oklahoma Contracting will resume work for Salt Lake Pipe Line Co. to lay 63 miles of 8-in. to complete the Burley-Boise, Idaho, section.

Early in May the company will start on the 85-mile, 18-in. Portland, Me., Gorham, N. H., section for Portland Pipe Line Co.

## Two Contracts Are Let for Boise-Pasco Products Line

Award of two contracts for construction of a products pipe line from Boise, Idaho, to Pasco, Wash., was announced last week by C. E. Finney, Jr., president of Salt Lake Pipe Line Co.

Morrison-Knudson Co., Inc., Macco Corp., and Bechtel Corp. will build the section from Boise to Baker, Ore. The northern part of the line, from Baker to Pasco, will be built by Pacific Pipeline & Engineers, Ltd.

The installation will be a 240-mile extension of the Salt Lake-Boise line begun last year by Salt Lake Pipe Line Co., a Standard Oil Co. of California subsidiary, to transport oil products to the Northwest from a refinery at Salt Lake City. The first leg, to Twin Falls, was opened to service early this month.

Construction of the Boise-Pasco section is scheduled to begin as soon as weather permits this spring. It will serve Standard's bulk distributing plants at Ontario, Pendleton, and Baker, Ore. In addition, terminal distribution facilities will be built at Pasco.

Total cost of the entire line and facilities from Salt Lake to Pasco will be approximately $13,500,000.

## Corrosion Short Course for Pipeliners Set Next Month

Demand for practical training in corrosion control for pipe-line superintendents, foremen, engineers, and inspectors has resulted in plans, announced by the Tulsa section, National Association of Corrosion Engineers, for a 4-day school to be held in Tulsa February 20-23.

E. P. DOREMUS

According to R. L. Bullock, Interstate Oil Pipe Line Co., the short course will cover pipe coatings, anode and rectifier installations, and pipe-corrosion testing.

Two full days will be devoted to field work at pipe-line locations, emphasizing the practical economies to be derived from proper application of proven corrosion-control methods.

W. HUDDLESTON

GAINES LASTER

Assisting Bullock in planning and direction of the school will be F. E. Pyeatt, Mid-Continent Pipe Line Co., J. C. Sterling, Stanolind Pipe Line Co., I. B. Tietze, Phillips Pipe Line Co., and other leading corrosion men


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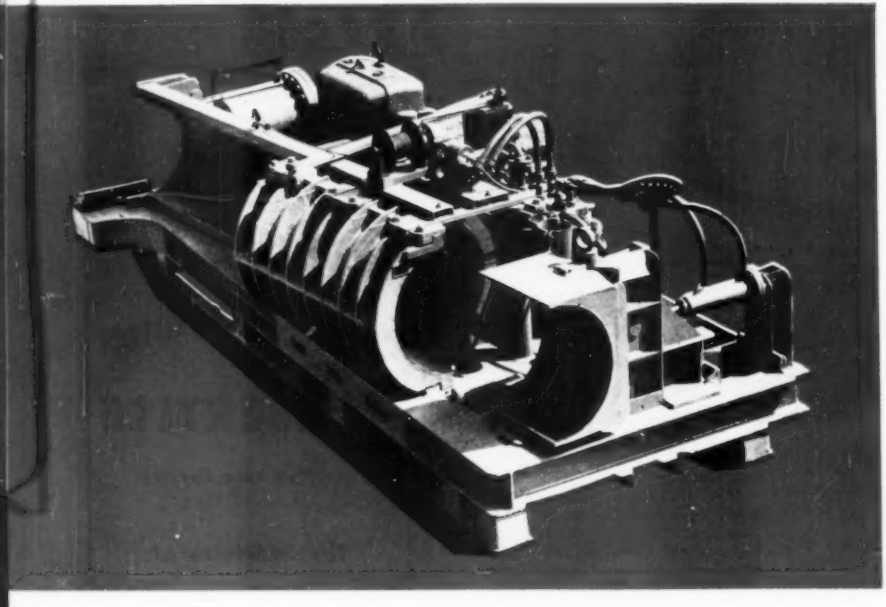

The Cinch Bender gives the owner the pipe line he desires—gives the contractor better production methods. Write for engineering details.

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CHASE, KANSAS — Call 22

in the Tulsa area. The training course will be conducted by E. P. Doremus, W. E. Huddleston, and Gaines Laster.

W. E. Huddleston, whose 20 years of pipe lining includes 15 years in the study and mitigation of corrosion, is now, head of the Huddleston Engineering Co. of Bartlesville.

Gaines Laster, a partner in the Tulsa Pipe Coating Co., has devoted some 16 years to coating operations on major pipe line projects in this country and abroad.

E. P. Doremus of Cathodic Protection Service, Houston, has served the oil industry since 1936 in research engineering as well as the design and installation of cathodic protective systems.

Those desiring to attend the course should send registration fee of $5, including bus transportation to field locations, to Frank E. McNulty, Thompson Building, Tulsa.

## Panhandle Eastern Plans Large Capacity Increase

Panhandle Eastern Pipe Line Co. has announced plans for increasing capacity to serve the Middle West and Canada.

The company has recently filed with Federal Power Commission an application for authorization of new facilities to cost more than $14,500,000, including 170 miles of large-diameter loop line in Illinois, Indiana, and Michigan, and 16,000 hp. of additional compressor units. This is in addition to the construction in 1950 of other new facilities costing approximately $16,000,0000 previously authorized by FPC.

W. G. Maguire, chairman of the board of Panhandle Eastern, said: "Panhandle Eastern has made arrangements with Trunkline Gas Supply Co., subject to necessary authorization from Federal Power Commission, for the purchase of 250,000,000 cu. ft. per day of natural gas. With this additional supply, plus our reserves and purchase contracts in the Hugoton and Panhandle fields, it will be possible for the company to step up deliveries from 500,000,000 cu. ft. per day to 800,000,000 cu. ft. per day, an increase of 60 per cent. Since 1942 Panhandle Eastern Pipe Line Co. has expanded its gas-system investment by more than $71,000,000."

## Changes Made in Status of Several Pipe-Line Projects

To supplement the construction tables appearing elsewhere in this issue it should be mentioned that Eastern Natural Gas Corp. has recently withdrawn its application to the Federal Power Commission for a 292-mile system to extend from Phoenixville, Pa., to New England cities. Announcement of this with-

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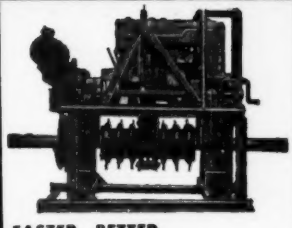
CLEANING MACHINE



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*Standard models:*

Model M—3" to 14" Pipe Cleaning machine
Model K—16" to 26" Pipe Cleaning machine
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**Each Pig Is Designed To Traverse Specified Valves and Fittings — SAFELY**

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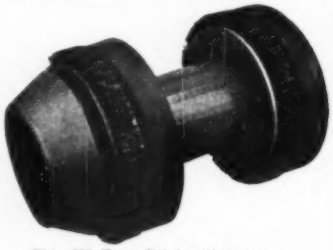
This Type RC-1 Pig, 16" size and larger, is for the usual conditions of:
Conventional gate valves
Full diameter, 90° laterals
Field bends, min. radius 10 ft.



This 22" Type RC-5 will traverse
Through-conduit valves
Full diameter, 90° laterals
Factory ells, 1½ radius, 22½°

Type RC-1 Pigs, 14" size and smaller, must traverse
Various types of gate valves
Elongated side openings (laterals)
Small-angle sharp bends

*Patents pending

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drawal came after the printing of the tables which must necessarily be done in advance to prepare for the current special issue.

San Diego Gas & Electric Co. has completed 50 miles and Southern Counties Gas Co. has finished 35 miles of an 85-mile, 16-in. system from San Diego, Calif., to the 30-in. line transmitting gas from Texas.

Pacific Gas & Electric Co. has laid more than 80 miles of 34-in. in the Llanada-Milpitas area of California for the 506-mile, Topock, Ariz.-Milpitas project now under construction.

## Lavaca to Lay Offshore Aluminum Pipe Soon

Lavaca Pipe Line Co., an affiliate of Aluminum Co. of America, will start work around January 30 for laying 3,500 ft. of aluminum pipe to be completed early in February. This section will be laid under water from a recently completed gas well to the header platform of the Lavaca system in Matagorda Bay. Half of the pipe is to be wrapped and coated by the usual procedure applied to steel pipe. The other half is to be left bare.

Lavaca Pipe Line Co. and Alcoa's development division will watch the line closely to determine the suitability of aluminum pipe in offshore service.

## Plains Natural Gas Co. to Transmit from 50 Wells

Plains Natural Gas Co. anticipates that approximately 50 wells will be connected by February 15 to the company's gathering system now being laid under contract with Arey-Phillips Construction Co.

This gathering system, comprising 78 miles of 4-in. to 24-in. line, scheduled for completion March 31, will transmit gas from Plains Natural's reserves to a connection with the Northern Natural Gas Co. lateral from the Sublette, Kans., station, consisting of 3.7 miles of 24-in. and 20 miles of 20-in. being completed by R. H. Fulton Co.

Leases of Plains Natural involved in this project comprise 115,000 acres located in Seward and Stevens counties, in Kansas, and Texas County, Oklahoma.

A small amount of gas over the past 2 years has been sold to Cities Service Gas Co. and Cabot Carbon Co. Supervision of the present gathering system is under Midwestern Constructors, Inc.

Drilling will be continued at substantially the present rate until the 181 wells contemplated have been completed. Wells for Plains Natural are being drilled by Midwestern Drillers, operating three rotary and four cable-tool rigs. Approximate depth of the wells is 2,750 ft. and it takes an average of 9 days to drill to the top of the pay formation.


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- Increases impact strength of most pipe coatings.
- Will not absorb moisture — Glass Fiber is non-hygroscopic.
- Inert to soil chemicals.
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- Excellent saturation characteristics with all types of pipe coatings.

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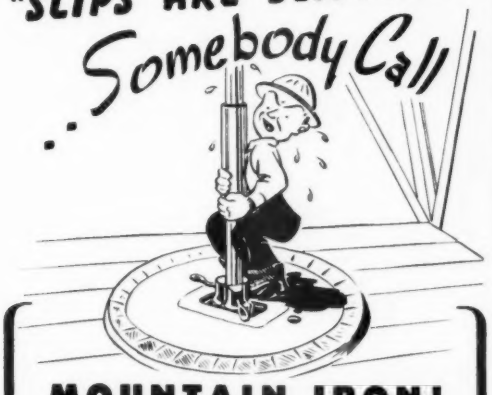

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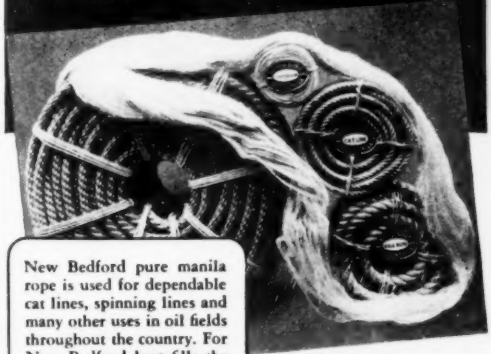

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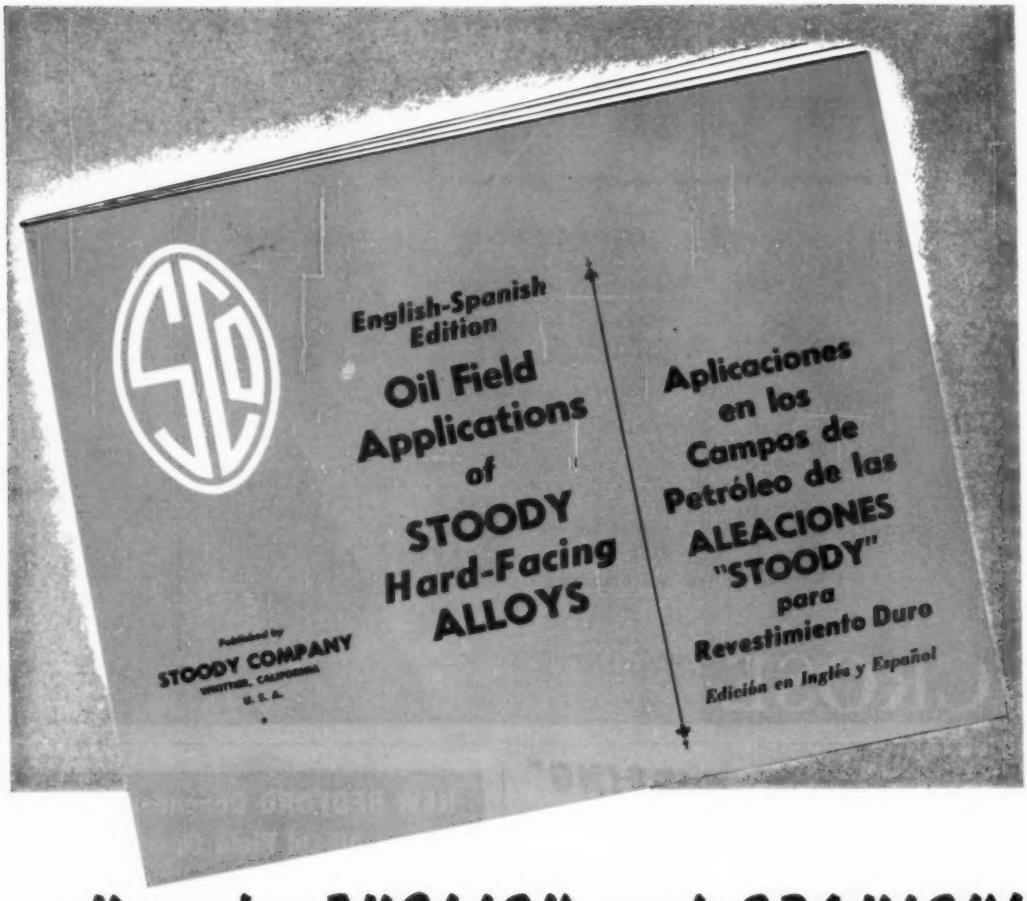
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## Among the

# Drilling Contractors

### Schmidt Joins Loffland In Permian Basin Area

Robert C. Schmidt, who, since 1946, has been employed by Reed Roller Bit Co., first as special sales representative in West Texas and later as manager of the Tulsa sales office, has become associated with Loffland Brothers Co., Tulsa, as contract representative in the Permian basin area of West Texas and New Mexico. He will make headquarters at Midland.

*R. C. SCHMIDT*

After completing schooling at the University of Missouri, Schmidt was employed by Hutchinson Engineering Works in the North Louisiana area. He was with Carl B. King Drilling Co. from 1935 to 1939, and then became field engineer in the Mid-Continent area for Technical Oil Tool Co., Los Angeles. Except for approximately 3 years during the war when he served as a naval officer, he was with the latter company continuously until he joined Reed Roller Bit Co.

### Delta Gulf Will Move From Dallas to Tyler

Delta Gulf Drilling Co., now located at Dallas, will move its headquarters to Tyler, Tex., where it will share offices in the Citizens Bank Building with Delta Drilling Co. Joe Zeppa, Tyler, is president of both companies. H. C. Methany, who will move from Dallas to Tyler, will become chief geologist of both companies. With the move, 14 rigs will be handled out of the Tyler office, 7 out of Odessa, in West Texas, and 18 out of Houston.

### Portable Drilling Expands Key Operating Personnel

Enlargement of key personnel of Portable Drilling Corp., Tulsa, has been announced by Hugh S. Chancey, president. Melburn H. (Bill) Brown, lately assistant to the superintendent of Parker Drilling Co., has been made drilling superintendent. Howard E. Bradley, who has been with the land department of Phillips Petroleum Co. at Oklahoma City, has been made Oklahoma representative with offices in the latter city. Leslie B. Riggins, Jr., who comes from California where he has had an active career with various oil, contracting, and equipment manufacturing companies on the West Coast and in foreign service, has been made chief engineer and geologist.

**ROTARY RIGS IN OPERATION***

(United States and Western Canada)

| Area | Week ended 1-16-50 | Change week ended 1-9-50 | Change week ended 1-17-49 |
|---|---|---|---|
| Gulf Coast | 515 | +14 | — 50 |
| W. Tex.-N. M. | 709 | + 5 | +154 |
| Ark.-N. La.-E. Tex. | 140 | + 3 | — 36 |
| Oklahoma | 234 | — 1 | — 6 |
| Kansas | 107 | — 6 | + 7 |
| Illinois-Eastern | 54 | —41 | — 38 |
| Rocky Mountains | 70 | — 4 | — 68 |
| Pacific Coast | 128 | 4 | — 49 |
| Total U. S. | 1,957 | —34 | — 86 |
| Western Canada | 72 | — 6 | + 12 |
| Total | 2,029 | —40 | — 74 |

*Courtesy Hughes Tool Co.

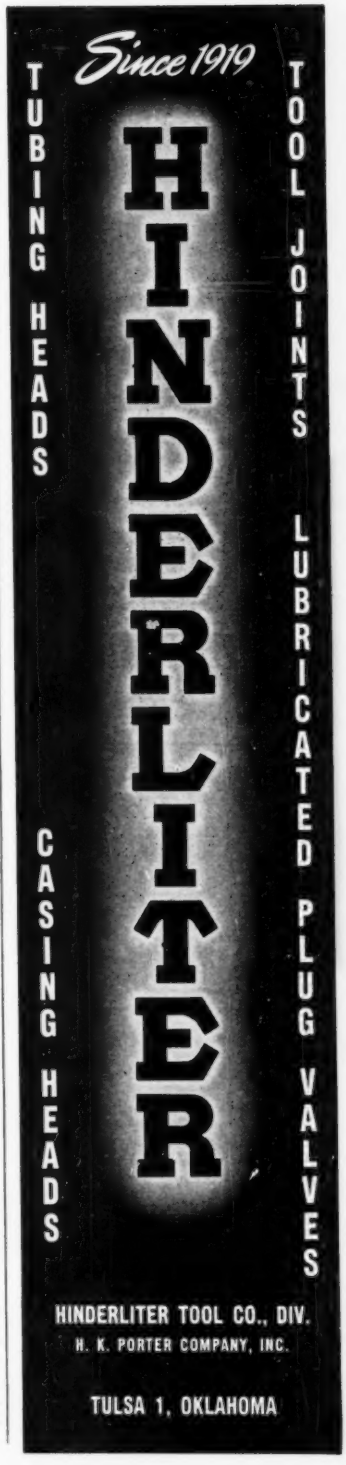
**Crow Drilling Co.**, Shreveport, as contractor and joint operator with Blackwell Oil & Gas Co., is starting a deep exploratory test in the Pine Island field, Caddo Parish, Louisiana. Location is in 5-20n-15w.

Latest contract for **Puckett Drilling Co.**, Wewoka, is for an exploratory test being drilled for Finston & Co. at 1 Lasley, 22-11n-10e, about 2¾ miles southeast of Okemah, Okfuskee County, Oklahoma. Location is about a mile from production.

**Northern Development Co.**, Edmonton, has the contract for a Cretaceous and Devonian exploratory test to be drilled for a group of Canadian and American independents, headed by A. G. Bailey & Co., near Dodds, 55 miles southeast of Edmonton, Central Alberta Province, Canada. Location is in LSD 15, 2-49n-18w4.

**Saco Oil Co.**, El Dorado, Kans., is contracting a wildcat test for Scanlon & Dillard in Butler County, Kansas. The test, 1 Noble, is located in 33-25-6e.

**Drilling Contractors, Ltd.**, Calgary, is moving a rig to a wildcat location about 1 mile from production at the northeast end of the Leduc field, southwest of Edmonton, Alta., Canada, where it will drill for R. W. Development Co. at 1 Leduc, LSD 4, 6-51n-24w4th.

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## Keating Drilling Co., Tulsa

Keating Drilling Co., headed by A. F. Keating, president, is headquartered in the National Bank Building in Tulsa. Keating, a native Pennsylvanian, entered the business in 1940. In addition to his regular work, he is a director in various civic groups in Tulsa. Other officers include: Paul W. Randels, Fort Worth, Tex., executive vice president; A. M. Keating, Tulsa, vice president; and John McKinney, Tulsa, secretary.

**History.**—Founded in 1937 as the Robey Drilling Co., the organization became Robey-Keating Drilling Co. in 1941. In 1943, the company began operating under its present name.

**Personnel.**—Keating's drilling superintendent is A. D. Parker, who has been with the company since its inception. Tool pushers are: Carl Shaw, in Kansas; Jack Hill, in Oklahoma; and John Kale, in Texas.

**Operations.**—Keating is a 100 per cent rotary drilling contractor and has performed most of its work for major companies. Operations are being conducted in Kansas, Oklahoma, Texas, and New Mexico. It currently has seven rigs running. Three are in Oklahoma, two being in Stevens County and one in Caddo County. Three are operating in Texas, two in Scurry County and one in the Texas Panhandle. One rig is in Finney County, Kansas.

**Glenn R. Nye.** Hays, Kans., is starting a wildcat test in northeastern Ellis County, Kansas, for Doley Oil Co. at 1 Witt, 33-12-16.

**Parker Drilling Co.**, Tulsa, has taken on a contract for a 3,000-ft. stratigraphic test to be drilled for Shell Oil Co. in the Muskwa area, in North Central Alberta Province, Canada. The location, in LSD 14, 35-84n-24w4th, is 190 miles north of Edmonton.

**Skeeter & Curry Drilling Co.** is the contractor on a projected 5,000-ft. Travis Peak exploratory test being started for W. M. Coats at 1 Nussbaum, in the Pedro Varella grant, 8½ miles southwest of Mexia, Limestone County, East Central Texas.

**Carpenter-Trant Drilling Co.**, Rangely, Colo., has taken a contract to drill three 3,000-ft. tests for Helmerich & Payne, Inc., on a 100,000-acre block the latter company recently acquired in Owyhee County, southwestern Idaho. The first test, to be started immediately, is located in 19-6s-8e, about 50 miles southeast of Boise City.

**Fred M. Manning, Inc.**, Denver, has moved a rig to Glenrock, Converse County, Wyoming, where it will drill a townlot location for Phillips Petroleum Co. in 5-33n-75w.


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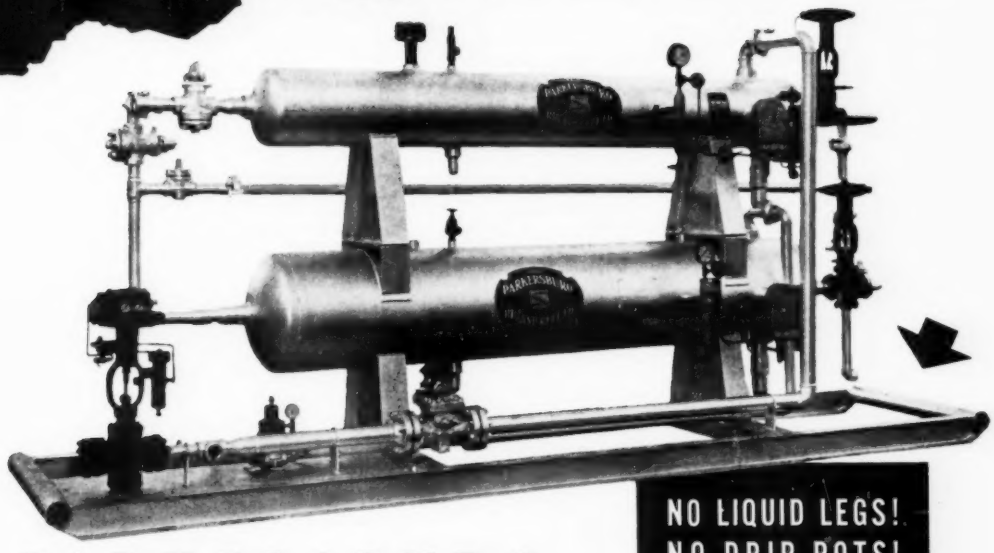

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# NATURAL GAS

## Allegany Gas Proposes to Acquire New Facilities

Acquisition and operation of all natural-gas facilities of North Penn Gas Co. and Dempseytown Gas Co. by Allegany Gas Co. has been proposed in an application filed with Federal Power Commission. All three companies are in Port Allegany, Pa.

North Penn's properties include 298.8 miles of transmission lines, 253.6 miles of distribution lines, 122.5 miles of field and gathering lines, 6,131 acres of producing lands, and appurtenant facilities in McKean, Potter, and Tioga counties. Allegany will pay $3,500,000 for the facilities.

Dempseytown's facilities involved include 64.6 miles of pipe line, compressor stations, producing properties, and gathering and distribution facilities.

## Techniques in Natural-Gas Utilization to Be Discussed

HOUSTON. — Improved techniques in the utilization of natural gas will be a major topic of discussion at the fifth annual short course in gas technology which will be held May 29-31 at Texas College of Arts and Industries, Kingsville.

Other sessions scheduled for the 3-day meeting include one on problems of production and transmission and a general session. Rounding out the program will be inspection trips to the King Ranch and industrial plants in the vicinity and a Texas-style barbecue.

Plans for the short course were laid at an organization meeting attended by the following: C. L. Brockschmidt, manager of sales, Texas Eastern Transmission Corp., Shreveport; Carl E. Cloud, gas superintendent, Oklahoma Natural Gas Co., Tulsa; D. T. MacRoberts, director of research, United Gas Pipe Line Co., Shreveport; R. R. Suttle, managing director, Southern Gas Association, Dallas; R. H. Ulrich, vice president, Southern Natural Gas Co., Birmingham, Ala.; William B. Wood, engineer, Rio Grande Valley Gas Co., Brownsville, Tex.; and Chester C. Young, manager of utilization engineering, Lone Star Gas Co., Dallas. Frank H. Dotterweich, Texas College of Arts and Industries, continues as chairman of the administrative committee.

## FPC's Investigation of Panhandle Deal Dismissed

An investigation of Panhandle Eastern Pipe Line Co.'s transfer of natural-gas reserves to Hugoton Producing Co., a subsidiary, in exchange for that firm's stock, has been dismissed by Federal Power Commission.

FPC pointed out that in a companion case the U. S. Supreme Court last June affirmed a lower court's ruling which denied FPC's motion for an injunction to restrain Panhandle from the stock distribution pending determination in the proceeding.

*Manifold at Cities Service Gas Co.'s recently completed Hugoton field compressor station. The station, which contains thirteen 600-hp. units, serves the company's Hugoton-to-Kansas City 26-in. line. Not shown in this picture is the manifolding for the two latest pumps installed in the station. Capacity of the line is about 300,000,000 cu. ft. daily, and the company now is moving about 277,000,000 cu. ft. daily through the line.*

## FPC Asked to Permit New Virginia Natural-Gas Line

Natural Gas Service Corp., Washington, D. C., has asked Federal Power Commission to authorize construction of 92 miles of pipe line in Virginia to carry natural gas to Petersburg, Hopewell, and Richmond. Over-all cost of construction is estimated at $2,450,000.

Natural Gas Service also is seeking authority to establish an interconnection in the Buckingham, Va., area with the Texas-New York City pipe line now under construction by Transcontinental Gas Pipe Line Corp., and to obtain a natural-gas supply from Transcontinental at that point.

The proposed new line would extend from the Buckingham connection to Richmond and Hopewell. The system would have a calculated daily market delivery capacity of 80,000,000 cu. ft.

Proceedings involving two other proposals to serve Virginia market areas, including Richmond, are now in progress before FPC. They were filed by Commonwealth Natural Gas Corp. and Piedmont Natural Gas Corp.

## Northern Natural Receives Approval for Expansion

Northern Natural Gas Co., Omaha, has received Federal Power Commission authority to build pipe-line facilities which will expand capacity of its gas-transmission system by 130,000,000 cu. ft. daily, to a total of 600,000,000 cu. ft.

Construction will include 597 miles of 20 and 26-in. pipe and installation of 35,200 hp. in compressor capacity. Estimated over-all cost will be $51,840,000. New pipe-line looping will be built in Texas, Oklahoma, Kansas, Nebraska, Iowa, and Minnesota.

Increased capacity is required to supply residential requirements, the company stated. Construction will begin by May 1 and is scheduled for completion December 31.

Northern Natural proposes to finance the project through the sale at competitive bidding of $40,000,000 in 20-year debentures carrying a coupon rate of 2¾ per cent, and by the sale of 304,500 shares of common stock on the basis of one share for each eight shares now outstanding, to supply from $9,060,000 to $10,657,500. The balance would be obtained either from working capital or from depreciation accruals or retained earnings.

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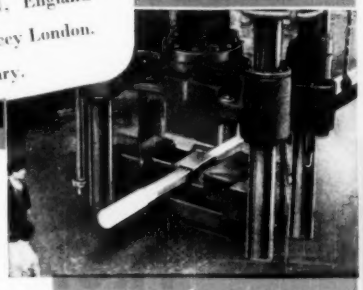

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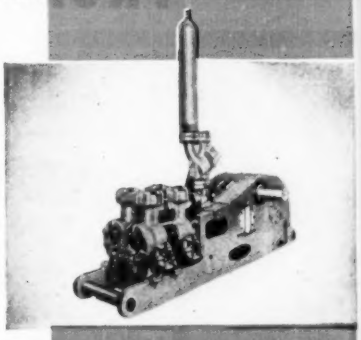

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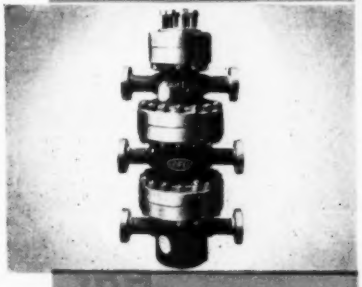

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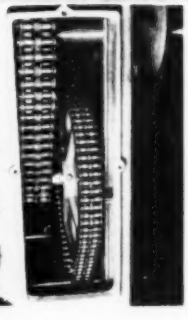

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# Exploration and Drilling

## N. End Midland Basin Gets Pre-Permian Oil

THE pre-Permian possibilities of the Midland Black Shale basin off the Central platform, were given a big boost by a new strike in the north end of the basin, nearly 100 miles north of the nearest basin pre-Permian production at Pegasus. The new strike is Tide Water Associated Oil Co. et al 1 Nystel, NW NW Section 9, Block C-38, Public School Land Survey, in southeast Terry County, producing from the Fusselman (Silurian). The new discovery is located about 14 miles southeast of the town of Brownfield, and about 4 miles east of the Permian production in Adair field.

The Nystel discovery flowed at the rate of 48 bbl. per hour of 35.5°-gravity oil for 8 hours through a $\frac{3}{4}$-in. choke, from perforations at 11,475-11,542 ft., after a 5,000-gal. acid treatment. Gas-oil ratio was very low, about 18 cu. ft. per barrel. On a later test, through a 7/32-in. choke, the well averaged slightly better than 30 bbl. per hour for 12 hours, with a gas-oil ratio of 23 cu. ft. per barrel. Flowing tubing pressure during the 12-hour test was 370 psi.

Besides Tide Water, other companies reported to have an interest in the well are Amerada Petroleum Corp., Cities Service Oil Co., and the Texas Co. The name for the new field will probably be "Corrigan."

This well had previously shown signs of possible production in the Pennsylvanian above the Fusselman, on a drill-stem test at 9,350-75 ft. This has been cased off, and a string of $5\frac{1}{2}$-in. pipe is cemented at 11,715 ft.

While pre-Permian production had previously been established in the south end of the Midland Black Shale basin, the nearest pre-Permian production down in the basin and off the Central platform was at Pegasus on the Upton-Midland county line. The new strike will now encourage pre-Permian prospecting in several counties between Pegasus and Corrigan. It makes prospects look more attractive in Midland, Glasscock, east side of Andrews, Martin, east side of Gaines, Dawson, Lynn, and Terry counties.

It is reported that the seismic picture indicates the field will not be very large in area. One encouraging factor, however, is that these same reports indicate the pre-Permian structure conforms fairly closely with the structure in the shallower Permian. But this same condition is said to have been true at Cedar Lake, a Permian producing field not far south. There a deep test to granite failed to find any pre-Permain oil. Until the new Corrigan strike, this had tended to dampen enthusiasm for pre-Permian possibilities. So far the results are: a structure that produced from the Permian, failed to produce in the pre-Permian; a structure that did not produce in the Permian, did produce in the pre-Permian.

To say that a 90-mile favorable-looking gap has been opened up may be a little hard to visualize. Looking back, it's fairly close to about the situation that would have existed up on the Central platform, if between Yates on the south and Hendricks field in Winkler County on the north, there had been no other production.

It is further proof, if any more were needed, that West Texas is just about one of the richest petroliferous regions in the world. It already had slightly over 20 per cent of the proven reserves of the United States. It looks as though it were going to continue to hold that position for many years to come. If seismic-shooting problems are not going to be particularly complex in the north end, as now seems to be indicated, deep tests will not look so hazardous.

There will be problems, of course, and the subsurface geologists will have their problems. For instance, in the Corrigan discovery, the interval between the Mississippian and the Ordovician increased to about 400 ft., as compared to only about 100 ft. of such section in a well only a few miles northeast.

*Charles J. Deegan.*

### HIGHLIGHTS OF WEEK'S DEVELOPMENTS

**WEST TEXAS.**—Further work was reported under way at General American Oil Co. 1 Josie Peck, 41-4s-T&P, prospective Pennsylvanian and Devonian discovery, 4 miles west of Pegasus field, southern Midland County. A drill-stem test was being made to 12,595 ft., total depth, in the Fusselman section of the Silurian. Mechanical failure prevented a test from 12,424-578 ft. Fifteen miles northeast of Bateman Ranch, King County, Ard Drilling Co. 2 Masterson, Block 52, F. P. Knott Survey, recovered some 2,000 ft. of free oil on a test of the Canyon (sand) from 4,219-4,924 ft. Companies holding nearby acreage include Gulf, Shamrock, Continental, Stanolind, Magnolia, and Ohio.

**SOUTH LOUISIANA.**—Approximately halfway between Grand Bay and Main Pass Block 69 fields, Plaquemines Parish, The California Co. has completed the 1 North Main Pass Unit for 245 bbl. of oil per day through a 9/64-in. choke. Production is through perforations at 9,026-47 ft. and total depth is 9,813 ft. A deeper oil sand was also found at 9,738 ft. The company owns 7,600 acres in this unit and other acreage in the immediate vicinity.

**ROCKY MOUNTAIN AREA.**—The Ohio Oil Co. has moved two rigs into the Huntsman area, Nebraska, for development drilling in its new gas field. The discovery gaged 12,500,000 cu. ft. of gas per day and unofficial reports have indicated an open flow potential of over 30,000,000 cu. ft. daily for this well. In the East Salt Creek area, Wyoming, Keniland Oil Co. plugged its wildcat after finding interesting shows of oil and gas in the Sussex and Wall Creek sands. The operators may drill another test in this area.

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# TEXAS GULF COAST

## New Oil Sand Found In Tidehaven Area

HOUSTON—G. S. Hinkle has developed a new oil sand in the Tidehaven (Live Oak) area of Matagorda County, with completion of the 1 Grace P. Heffelfinger well. Hole is bottomed at 8,830 ft. and is producing 108 bbl. of 39.6°-gravity oil daily through perforations at 8,569-75 ft. Flowing pressure on the tubing was recorded at 1,500 psi. The new sander is located in the J. Tilley Survey, Abstract 93.

McCarthy Oil & Gas Corp. has logged 11 sands in the 1 Franciska Lesikar et al, New Ulm area wildcat in Austin County. The log revealed sands from 9,030-45 ft.; 9,053-64 ft.; 9,096-110 ft., 9,390-450 ft.; 9,665-76 ft.; 9,690--740 ft.; 9,766-90 ft.; 9,790-804 ft., 9,808-945 ft.; 10,010-35 ft., and 10,225-95 ft. Hole is bottomed at 10,312 ft. and operators have cemented casing on bottom for production. The prospective discovery is located in the Adam Kuykendall Survey, Abstract 243, 4½ miles east of New Ulm and is 3,200 ft. southwest of the A-1 Schiller test, which is producing through perforations at 9,048-58 ft.

There is still much speculation about H. L. Hunt's 1 J. C. Macgregor Unit, located in the city limits of Alvin, Brazoria County. It has been confirmed as a good well, but it is not known yet whether it is an oil, gas-distillate, or gas well. Hole is totaled at 10,986 ft. and oil string was cemented at that depth for completion. It is definitely known that gas sands were logged around 8,600 and 9,300 ft.

Morris Mizel and Rock Hill Oil Co. are drilling ahead at 7,600 ft. in the 1 Erwin Landgrebe after testing condensate on two tests. Drill-stem test run at 7,447-61 ft. recovered 500 ft. of condensate-cut water cushion and 30 ft. of condensate and developed 600-psi. working pressure in 20 minutes. Another test was run from 7,477-92 ft., and in 18 minutes the recovery was 100 ft. of condensate-cut mud and water cushion and 500 ft. of condensate-cut water cushion with 590-psi. working pressure. Test is located in the Thomas Hancock Survey, Abstract 142, 10 miles north of the Weesatche field, Goliad County.

### TEXAS GULF COAST (DISTRICTS 2 AND 3) SUCCESSFUL WILDCATS

Fort Bend County: Oil discovery—Jack W. Frazier and Humble Oil & Refining Co. 1 Will Hartlage, John Frederick Sur., A-172, 5 mi. N-NE of Richmond, 1½ mi. S of Clodine field, top pay 7,385 ft., TD 8,005 ft., perf. 7,391-93 ft., IP: 190 bbl. oil per day, 3 16-in. choke, GOR 2,130, TP 1,675 psi., CP 1,700 psi., 43.5° gravity.

Matagorda County: New pay at Tidehaven (Like Oak)—G. S. Hinkle 1 Mrs. Grace P. Heffelfinger, J. Tilley Sur., A093, Lot 2, top pay 8,569 ft., TD 8,830 ft., perf. 8,569-75 ft., IP: 108 bbl. oil per day, 6 64-in. choke, GOR 1,140, TP 1,500 psi., 39.6° gravity.

Victoria County: New gas discovery, "Fordtran West"—Jergins Oil Co. 1 Cora T. Hensley, IRR Sur. 5, A-206, near DeWitt County line, 2 mi. W of Fordtran, 3 mi. W of Fordtran field, TD 9,520 ft., perf. 8,240-44 ft., IP: no gage, shut in, TP 2,800 psi.

New pay at Welder Ranch—Southern Minerals Corp. 1 J. A. McFaddin Estate, IRR Sur. 15, A-215, 10 mi. N-NE of Victoria, TD 5,986 ft., perf. 5,966-71 ft., IP: gas well, no gage, SIP 1,200 psi.

Wharton County: Gas condensate discovery, "Weinheimer"—P. L. D. Well Service Co. 1 E. A. Weinheimer, Lyman Conkrite Sur., 4,700 ft. NW of Grubb & Hawkins 1 Peters discovery at Gobbler Creek, top pay 5,102 ft., TD 5,430 ft., dually completed, perf 5,217-23 ft., IP: 25 bbl. condensate and 2,000,000 cu. ft. gas per day, 1 5-in. choke, TP 750, 49° gravity, perf. 5,102-04 ft., IP: 10 bbl. condensate and 2,225,000 cu. ft. gas per day, ¼-in. choke, CP 1,857 psi., 47° gravity.

### TEXAS GULF COAST (DISTRICTS 2 AND 3) WILDCAT FAILURES

Burleson County: Geo. Parker and Chas. L. McCune 1 Marion W. Hohlt, J. Ybarbo Sur., A-268, 4½ mi. NW of Clay townsite, dry, TD 6,520 ft.

Lee County: Geochemical Exploration Co., Inc., et al 1 Natalie T. Carlisle, Samuel Marshall Sur., 4 mi. SE of Lexington, dry, TD 1,981 ft.

Orange County: Nilex Co. 1 H. J. Lutcher Stark et al, John W. Maxey Sur., A-425, 2.4 mi. NW Mauriceville, dry, TD 7,696 ft.

Sun Oil Co. 1 Shannon, Orange Hackberry, SE flank, Aaron Nelson Sur., A-140, dry, TD 7,347 ft.

# N. CENTRAL TEXAS

## Wise County Test Looks Promising

WICHITA FALLS.—Two miles southwest of Park Springs, in northwest Wise County, A. R. Dillard and others' 1 J. D. Smith, Block 1, Falls County School Lands, recovered a small amount of free oil from the upper Bend conglomerate.

The wildcat topped the conglomerate at 5,790 ft. and drilled to 5,803 ft. A 2-hour drill-stem test of the section had gas in 33 minutes and recovered 13 ft. of oil plus 100 ft. of heavily oil-cut drilling mud. Bottom-hole pressure was 1,450 psi. in 15 minutes.

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HOUSTON

wildcat in Block 4, Falls CSL, 5 miles northwest of Alvord, had tentative top on the Caddo at 5,752 ft., and the conglomerate at 5,876 ft. A drill-stem test from 5,845-92 ft. showed gas in 34 minutes and in 90 minutes recovered 90 ft. of gas-cut mud. Bottom-hole pressure was 1,500 psi. in 20 minutes. It was drilled ahead.

Location was made for a new wildcat 9 miles southwest of Bridgeport by K. W. Kilpatrick, Dallas, as the 1 A. E. Albright, S. Evitts Survey, A-264. It was scheduled to 5,000 ft. with cable tools.

**Jack County.**—Trinity Producting Co. 1-A J. B. Clay, wildcat 5 miles east of Jermyn, Block 2, W. J. Cooke Survey, A-2186, was reported making an estimated 50 bbl. of oil a day from the lower Caddo, topped at 4,901 ft. Further details were not disclosed. Location is about 1 mile east of Wolfe field, which has production in the upper Caddo around 4,450 ft.

Ten miles southeast of Bryson, William Hamm, Jr., 1 E. F. Robertson, M. J. Swann Survey, A-1650, was waiting on orders at 4,707 ft. A 1-hour test of the Caddo at 4,297-4,318 ft. recovered 18 ft. of drilling mud, and a second test from 4,696-4,707 ft. had gas in 3 minutes and after 1 hour recovered 26 ft. of distillate plus 4 ft. of slightly gas-cut mud. Bottom-hole pressure was 1,910 psi. in 15 minutes.

**Haskell County.**—Stanolind Oil & Gas Co. has filed application with the Railroad Commission to deepen its 4 F. A. Pleasants, located on the south edge of the South Haskell field, to 6,000 ft. to test the Ellenburger. It will be the first in the area to test at that depth. At last report the well was drilling below 5,385 ft. in lime and chert. Top of the Reef lime was reported at 3,618 ft., from which it recovered 2,200 ft. of oil and 600 ft. of salt water on a 1-hour drill-stem test at 3,611-32 ft. The upper Strawn was logged at 4,407-15 ft., and tentative top on the Caddo was 5,115 ft. There were light oil shows in the Strawn and salt water in the Caddo from 5,164-83 ft.

### NORTH CENTRAL TEXAS (DISTRICTS 9 AND 7-B) WILDCAT FAILURES

Brown County: Lone Star Producing Co. 1 H. L. Buford Est., Sec. 5, HT&B Sur., A-476, $1^1/_2$ mi. SW May, TD 3,105 ft., elev. 1,633 ft., Mississippian 2,479 ft., Ellenburger 2,946 ft.

Comanche County: Ray Oil Co. 1 H. T. Jamar, E. Cooper Sur., $1^1/_2$ mi. E Beattie, dry, TD 3,284 ft., elev. 1,334 ft., Mississippian 2,595 ft., Barnett 2,958 ft., Ellenburger 3,061 ft.

L. F. Sawyer 1 O. T. Jarvis, Blk. 15, Jessee Dickenson Sur. 10. 8 mi. NE May, dry, TD 637 ft., elev. 1,688 ft.

J. K. Wadley 1 W. H. Lane, Sec. 41, ETRR Sur., $7^1/_2$ mi. NW Comanche, dry, TD 3,587 ft., elev. 1,394 ft., Caddo 2,045 ft., Mississippian 2,642 ft., Barnett 2,978 ft., Ellenburger 3,083 ft.

Haskell County: Anderson-Prichard 1 W. P. Russell, Oliver Smith Sur., A-371, $4^1/_2$ mi. SW Weinert, dry, TD 6,030 ft., elev. 1,558 ft., Pennsylvanian 4,737 ft., Mississippian 5,750 ft., Ellenburger 5,950 ft.

Jones County: Bert Broday 1 Pittard & Perry, Sec. 12, OAL, 5 mi. NE Anson, dry, TD 3,949 ft., elev. 1,650 ft., top lime 2,884 ft.

Moutray-Moore Drilling Co. 1 W. M. Newton, 1-20-T&P, 8 mi. N Abilene, dry, TD 2,025 ft., elev. 1,613 ft.

Carl S. Shoults 1 G. R. Riddle, Sec. 1, GH&H Sur., 6 mi. E Hamlin, dry, TD 3,208 ft., elev. 1,662 ft., Flippen 2,612 ft., Swastika 3,136 ft.

Palo Pinto County: Joe W. Miller 1 J. F. Rogers, 889-TE&L Sur., 3 mi. NE Graford, dry, TD 1,500 ft., elev. 915 ft., top lime 1,450 ft., coal 1,220 ft., sand 1,350-75 ft., sand with odor 1,470 ft.

Shackelford County: Douglas Engineering Co. 1 Clausell Est., Sec. 582, TE&L Sur., $3^1/_2$ mi. NE Albany, dry, TD 900 ft., elev. 1,378 ft., coal and shale 760-75 ft.

Taylor County: Anderson & Word 1 W. Stith, Sec. 430, George Hancock Sur., 1 mi. N Lawn field, 1 mi. W Lawn Township, dry, TD 4,184 ft., elev. 1,917 ft., Valera 745-930 ft., Gardner 4,043 ft., Gray 4,134 ft., no shows or tests.

## EASTERN TEXAS

### Harrison County Wildcat Tests Gas and Distillate

DALLAS.—A discovery, or long extension to Waskom field of Harrison County, LaGloria Corp. and Arkansas Fuel Oil Co. 1 Minnie B. Downs, Edwin Cater Survey, A-165, continued testing and at last report was flowing 8,000,000 cu. ft. of gas daily, plus an unestimated amount of distillate. The flow was through $^1/_4$-in. choke from perforations in the Travis Peak at 6,233-46 ft. and 6,313-28 ft. Total depth was 6,400 ft., with 5-in. casing set 1 ft. off bottom. Tubing pressure was 1,775 psi. Located $2^1/_2$ miles north of the town of Elysian Fields, it is about 5 miles southwest of Waskom field limits.

South of Lassater field in Marion County, C. Andrade III 1 Witt Unit, completed dry at 9,262 ft. in the Cotton Valley topped at 9,110 ft. according to one source, and 9,035 ft. on other reports. The well had possible shows of oil in the Travis Peak but recovered salt water on a drill-stem test from 8,980-9,057 ft.

In Hopkins County, W. B. Hinton 1 G. L. Henderson, 12 miles north of Sulphur Springs in the U. M. Aiguier Survey, was drilling near 7,000 ft. It was scheduled to the Cotton Valley, expected around 9,000 ft.

S. J. Carnes and R. L. Milam, Camden, Arkansas, operators, were reported to be working over their 1 W. A. Bridges, Forbes Survey, Shelby County. The well was drilled dry to 6,015 ft. in 1948 by M. E. Davis. At last report it had been plugged back to 3,670 ft., and was swabbing about 28 bbl. of fluid a day, said to be 50 per cent oil, from perforations at 3,656-60 ft. Carnes made location for a new wildcat in the R. S. Forbes Survey, A-211, 6 miles east of Patroon in southeastern Shelby County, which is to be the 1 Pickering Lumber Co. Location is 4,250 ft. west and slightly north of the 1 Bridges.

In the Crow area of southern Wood County, F. R. Jackson and associates were planning a Paluxy exploration on their 3,400-acre block. Drill site was to be on the 250-acre W. J. Harrell land in the William Wallace Survey, A-648. Location is 3 miles northwest of Manziel 1 Dunahoe, sub-Clarksville failure reported dry this week at 4,866 ft.

Hollandsworth Oil Co. has scheduled four additional tests in the area of its 1 George A. Schenewerk, Woodbine prospect now testing, in the William Fisher Survey, south of Pine Mills. They are: 1 Four States Oil Co., a southwest offset to the 1 Schenewerk, to be drilled immediately; 1-B and 2-B George Schenewerk, on a 104-acre tract south of the discovery; the 2 Schenewerk, out of the northwest corner of the 40-acre tract where the first well was drilled. F. R. Jackson was reported offsetting the strike 1,600 ft. to the northeast, on the C. W. Foucke land, G. B. Watkins Survey. Meanwhile, completion efforts were still under way at the 1 Schenewerk, bottomed at 5,627 ft. and perforated in the Woodbine from 5,475-90 ft. Swabbing had been resumed after recementing plug separating the sand from a water section in the basal Woodbine.

### EAST TEXAS (DISTRICTS 5, 6, AND 6-P) WILDCAT FAILURES

Bosque County: C. M. Buie 1 A. M. Anderson, Isaac B. Brown Sur., 7 mi. S Meridian, dry, TD 6,417 ft., elev. 775 ft., Trinity 82 ft., Strawn 702 ft., Ellenburger 5,331 ft., oil show in sand 512-518 ft., gas show 589 ft. and 3,958 ft.

Marion County: C. Andrade 1 I. P. Witt Unit, Rufty, Moody & Madden Sur., S Lassater field, dry, TD 9,262 ft., elev. 306 ft., anhydrite 6,120-30 ft., Massive

anhydrite 6,350 ft., base James 7,259 ft., top Pettit 7,370 ft., Travis Peak 7,507 ft., Cotton Valley 9,110 ft.

McLennan County: Maresh & Billingsley Oil Co. 1 W. D. Pace, W. M. Ranney Sur., 7 mi. E McGregor, dry, TD 378 ft.

Sarida Oil Co. 1 T. Compton, A. Y'Barbo Sur., 2 mi. N Crawford, dry, TD 1,200 ft.

Red River County: Harvey Drilling Co. 1 J. K. Baker, Wm. Becknell Sur., 1½ mi. SW Bagwell, dry, TD 1,825 ft., elev. 471 ft., Paluxy 1,795 ft.

Robertson County: F. M. Morrison 1 A. C. Ellis, S. W. Hill Sur., 7 mi. E Franklin, dry, TD 5,165 ft., Woodbine 4,990 ft.

Wood County: R. J. Caraway and A. V. Erwin 1 J. L. Mullinax, G. B. King Sur., 1 mi. SE Winnsboro, dry, TD 6,704 ft., elev. 511 ft., Eagleford 4,236-46 ft., Woodbine 4,715 ft., Comanche 5,285 ft., Fort Worth 5,855 ft., Paluxy 6,455 ft.

Bobby Manziel 1 C. E. & Lee Dunahoe, M. G. Whitaker Sur., 1 mi. S Crow, dry, TD 4,866 ft., elev. 342 ft., base Pecan Gap 3,400 ft., Austin 4,624-4,750 ft., by samples.

**EAST TEXAS (DISTRICTS 5, 6 AND 6-P) SUCCESSFUL WILDCAT**

Grayson County: New field—The Texas Co. 1 John Marshall, 700 ft. from E, 3,725 ft. from S lines, A. Tuttle Sur., A-1193, 2½ mi. S Sandusky, N Gordonville in NW corner of county, TD 7,885 ft., top Ellenburger pay 7,848 ft., flowed 105.5 bbl. 44.5 -gravity oil a day, 12 64-in. choke, GOR 213 cu. ft., TP 200 psi., CP 750 psi., 7-in. casing set to 7,848 ft.

## CALIFORNIA

### Reserve Pool Discovery Owned by Partnership

LOS ANGELES.—The Rose L. Bright 1 discovery well of Reserve pool in the Tejon area, Kern County, is now the property of BKS Oil Co. The new company is a partnership formed by Rose L. Bright, W. L. Kumler, and J. Paul Sievers.

Humble has held up temporarily on staking location for a second test of its recently discovered deep zone in the Del Valle area. The 1 Newhall Land & Farming is currently flowing 255 bbl. per day of 34°-gravity oil with 615 M.c.f. of gas. Humble continues to test in this well.

An extension of East Los Angeles field appears sure after initial tests of the Richfield 7 U. P. Unit in the southwest corner of 9-2s-12w. A test of the interval 8,300-8,345 ft. brought gas in 15 minutes, fluid in 25 minutes, and oil in 50 minutes. The interval 8,345-8,380 ft. gave a fair, steady blow with recovery of 890 ft. of gassy, muddy oil. The test is bottomed at 8,386 ft.

Work has again begun on the Basin Oil Co. 8-2 Inglewood Comm. after standing idle at 10,514 ft. since early last September. A window has been milled at 9,075 ft. and whipstock set. The well is now redrilling at 9,800 ft. Location is in Potrero field, 26-2s-14w.

In the Whittier field Union Oil is running casing in 15 Sansinena after deepening through the shoe from 3,595 ft. to 4,336 ft.

Union Oil has made location for a 10,000-ft. test in the Cymric area. The try is 77X-7 Richardson, 7-29s-21e. The Carneros, Phacoides, Oceanic, and Point of Rocks sands will be tested.

The 3 Sawyer-Reed, a Western Gulf well in Fruitvale field is again producing following its third recompletion. New depth is 4,530 ft., deepened from 3,442 ft., and from 4,499 ft. The well is flowing 87 bbl. per day of 16°-gravity oil.

Standard Oil plans to carry its 2-9 Jewett Comm. in Mountain View field to basement. The well cored siltstone and oil sand through the interval 7,182-7,229 ft.

At Riverdale, Fresno County, the Amerada Petroleum Corp. 54-15 Cerini has been taken over by Coast Exploration Co. Location is 15-17s-19e. Present depth is 7,930 ft. Coast plans to redrill.

Shell Oil has staked location for a wildcat try in Kings County, Tulare Lake area. Location is nearly 9 miles north of Trico gas field in Section 11-23s-21e. The test is 1-11 Harvester Unit.

**CALIFORNIA SUCCESSFUL WILDCAT**

Fresno County, Burrel area: L. M. Lock-Hart 1-34 Burrel, 34-16s-18e, 1,250,000 ft. of gas, plus 2½ gal. 60°-gravity condensate, 1 mi. NW Burrel field production, TD 6,700 ft., elev. 213 ft.

**CALIFORNIA WILDCAT FAILURES**

Contra Costa County, Byron area: Standard Oil Co. 1 Sproule, 14-1s-3e, dry, TD 6,070 ft., elev. 15 ft.

Kern County, Dominion area: Maurer & Fisher 6 Jean, 16-26s-28e, dry, TD 1,407 ft., elev. 925 ft.

Mount Poso area: Union Oil Co. 24-5 Williams, 5-28s-28e, dry, TD 5,204 ft., elev. 900 ft.

Kings County, Pyramid Hills area: Pacific Oil & Gas Development Corp. 35-28 Hand, 28-24s-18e, dry, Cretaceous 2,370 ft., oil shows in Tembler 800-900 ft., gray shale 1,650 ft., TD 2,600 ft., in Cretaceous, elev. 606 ft.

Los Angeles County, Newhall area: Parton Transportation Co. & Asso., 1 Brown, 18-3n-14w, dry, TD 755 ft., elev. unknown.

Oak Spring Canyon area: Fairview Exploration Co. 1 HCL, 24-4n-15w, dry, TD 2,733 ft., elev. unknown.

San Luis Obispo County, Atascadero area: Mar-Roo Syndicate 1 Lampman, 36-28s-12e, dry, middle Miocene 1,400 ft., TD 3,011 ft., elev. 911 ft.

Ventura County, Montalvo area: Standard Oil Co. 26-10 McGrath, 30-2n-22w, dry, TD 9,231 ft., elev. 40 ft.

Simi area: Northridge Oil Co. 1 Simco, 31-3n-17w, dry, TD 3,048 ft., elev. unknown.


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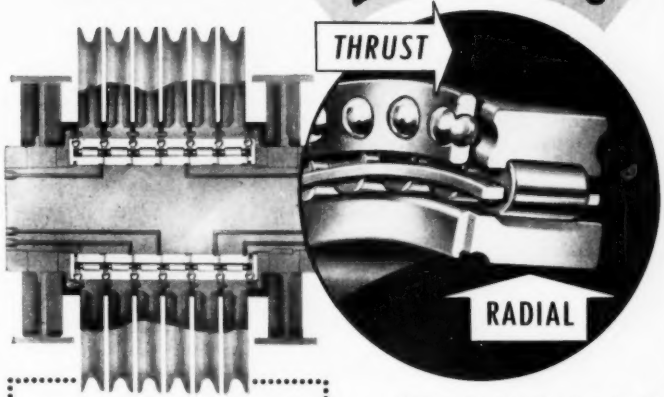


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# PERMIAN BASIN

## New Pool Opened In Terry County

MIDLAND.—Tide Water Associated Oil Co. and others' 1 Nystel, NW NW 9-C38-PSL, southeast Terry County, completed as a discovery well in the Fusselman section of the Silurian, flowing 384 bbl. of 35.5 -gravity oil in 8 hours through ¾-in. tubing choke, for a calculated daily potential of 1,152 bbl. of oil a day. Location of the new well is about 4 miles east of San Andres production in Adair field, ¾ mile north of the south and 7 miles west of the east county lines. Production was from perforations at 11,475-11,542 ft., after treating with a total of 5,000 gal. of acid. Gas-oil ratio was 17.6 cu. ft.

Following the potential test, a 12-hour gage through 7/32-in. choke yielded 362.4 bbl. of oil, under tubing pressure of 370 psi. The well was drilled to 12,094 ft. in the Ellenburger, which carried water. Five-inch casing was set to 11,715 ft. A drill-stem test at 9,350-75 ft., in the Pennsylvanian, indicated possible production but the section was cased off.

Amerada Petroleum Corp., Cities Service Oil Co. and The Texas Co. were reported to be interested in the discovery, and to hold considerable offset acreage. In filing for a new discovery allowable, operators suggested the name "Corrigan" for the new pool.

**Scurry County.**—Gene Goff and others 1 Joe Ryland, 124-3-H&GN, Strawn discovery 1 mile northeast of the town of Snyder, had cleared clogged tubing and flowed 66 bbl. of clean oil in 4 hours. Top of the Strawn was 7,174 ft., or minus 4,770 ft. Five-inch casing was set at 7,170 ft., total depth.

Within the Snyder townsite and southwest of the above well, Fred T. Jeter 1 Browning & Scott, 630 ft. from south and 330 ft. from west lines, Section 124, recovered 470 ft. of mud and 810 ft. of salt water on a 30-minute test at 7,150-84 ft. The test was made in an unidentified lime topped at 7,150 ft., which indicated light porosity from 7,164-7,237 ft.

William Hamm, Jr., and Jones & Simpson Drilling Co. 1 Dee Myers, approximately SE SW 244-97-H&TC, 1½ miles north of production in Diamond M field, topped the reef at 6,765 ft. A 40-minute drill-stem test from 6,781-99 ft. had gas in 5 minutes, oil in 32 minutes, and flowed an estimated 8 bbl. of oil an hour for 8 minutes. It was drilled ahead following the flow test.

On the northeast side of Kelley field (Wilkirson area), Wilshire Oil Co., Inc., 2 E. C. Rinehart, 251-97-H&TC, reported a flow of 205 bbl. of clean oil an hour on a 2-hour test from pay at 6,540-6,780 ft., flowing through ¾-in. choke. Gas volume was estimated at 2,600,000 cu. ft. daily. Operators were setting 7-in. casing at 6,579 ft. for completion in open hole. Wilshire moved its rig from the 2 Rinehart to its 3 Rinehart, one location west in the same section, and in less than 24 hours had spudded in at the new site.

M. E. Davis 1 John J. Schattell, Ellenburger prospect 5 miles northeast of Snyder in 90-2-H&TC, continued testing on the pump. Its latest 16-hour period produced 35 bbl. of oil from 7,736-75 ft.

In eastern Scurry County, 3½ miles west of Hermleigh, American Republics Corp. 1 Don C. Sivalls, SW NE 34-3-H&GN, was dry at 7,877 ft., total depth, and was preparing to run electrical surveys. On elevation of 2,389 ft., it topped the Ellenburger at 7,711 ft., drilled 7,725 ft., and with packer at 7,705 ft., recovered 2,350 ft. of salt water on a 45-minute drill-stem test. Deepened to 7,877 ft., a 75-miuute test with packer at 7,777 ft. recovered 7,400 ft. of sulfur water.

Twelve miles southeast of Kelley field, Burdell Oil Co. 1 Walter Brown, SW NW 65-3-H&GN, was to plug back after recovering 2,000 ft. of fresh water, plus 950 ft.

(Continued on page 389)

## SOUTHWEST TEXAS

### Texaco Gets High-Gravity Oil in Lavaca County Test

CORPUS CHRISTI—The Texas Co. has completed the A-3 Cora Russek for a new oil discovery 3½ miles southwest of Ezzell. The new discovery is producing 136 bbl. of 42°-gravity oil through 9/64-in. choke through perforations at 5,284-90 ft. in the Yegua sand. Located in Lavaca County, the well is 5 miles from nearest production, which is the Hope Wilcox gas field.

In Jim Hogg County, Texas Co. has run a drill-stem test from 4,756-66 ft. in the 4 A. K. East, and in 15 minutes a slight blow was recorded and 40 ft. of gas-cut mud and 600 ft. of salt water was recovered. Located in the Santo Domingo de Arriba Survey, in East field, is 1 mile east of the discovery well, which is producing from the 4,600-ft. level.

In the London Gin field of Nueces County, Barnsdall Oil Co. is testing condensate and gas in the 4 C. N. Cooke. The well flowed 5½ bbl. of condensate and gas through a ¼-in. choke with 1,250-psi. working pressure on a 10-hour test. The well is at a total depth of 5,775 ft. and 5½-in. casing is set at 4,700 ft. This is the first well in the field to test gas.

On the shores of Lake Corpus Christi, in northeast Jim Wells County, much speculation is centered around the Daubert, Achning and Quin 1 Ella Lou Wade. Reports have varied on this "tight" well, but apparently the most authentic was of a sand at 5,116-28 ft. On 15-minute drill-stem test at 4,018-24 ft., through a ¼-in. choke, the well was said to have showed 190-psi. working pressure and recovered 1,750 ft. of pipe-line oil. The lake area has another discovery, a shut-in gas well, in the same grant (Casa Blanca, A-296) with the new oil discovery. It is the William J. Hamm, Jr., 1 Myra L. Duboise, which was completed at 4,004-14 ft.

**SOUTHWEST TEXAS (DISTRICTS 1 AND 4) SUCCESSFUL WILDCATS**

Brooks County: New oil discovery "Palo Blanco"—I. K. Howeth et al 2 Kathleen Locker Alexander, Block 69, 4th Addn. Realitos Subd., Los Megueyes de Palo Blanco grant, 3 mi. SE of Sejita, top pay 4,780 ft., STTD 4,816 ft., perf. 4,781-815 ft., IP: 60 bbl. oil per day, ⅜-in. choke, 41° gravity, TP 0-6 psi., casing sealed.

Guadalupe County: Oil discovery—F. D. Glass 1 Frank Zoboroski, Joseph D. Clements Sur. 14, top pay 2,395 ft., Taylor sand, TD 2,415 ft., completed from open hole 2,374-415 ft., IP: 439 bbl., ½-in. choke, 33.5° gravity, GOR nil.

Jim Hogg County: Gas discovery "Ed Lasater"—Gorman & Delange et al 2 Mary M. Lasater Est., Sur. 270, 25 mi. SW Hebbronville (this is original discovery well for Ed Lasater field. The 3 Mary Lasater was an oil discovery), TD 2,572 ft., perf. 2,032-67 ft., completed as gas well and shut in.

Jim Wells County: Gas discovery—W. B. Osborn 1 H. M. Chiles, La Vaca grant, 1½ mi. SW of Alice, TD 5,345 ft., perf. 4,978-96 ft., IP: no gage, shut in.

**SOUTHWEST TEXAS (DISTRICTS 1 AND 4) WILDCAT FAILURES**

Guadalupe County: Gutowsky & Polis 1 A. F. Harborth, William J. Ragsdale League 52, 4 mi. N of Geronimo, dry, TD 3,085 ft.

Sam Maceo Oil Operations 1 B. R. Ussery, Wm. G. Hunt Sur., 1½ mi. W of Sullivan, 1 mi. SW of Wolf Creek field, dry, TD 2,530 ft.

Jim Wells County: Cox & Hamon 1 Felix Hinojosa, SK&K Sur. 229, 9 mi. NW of Premont, ¾ mi. NW of Premont field production, dry, TD 6,030 ft.

Webb County: W. F. Houser 1-A Z. Lopez, 25 ft. N of 1 abandoned well, 1¼ mi. S-SW of Kilam 1 Santos, dry, TD 1,526 ft.


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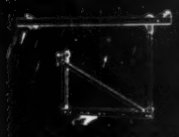

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## MISSISSIPPI

### Carter Taking Samples From Pickens Area Test

JACKSON.—In the Pickens field area, Yazoo County, Mississippi, Carter Oil Co. took side-wall samples from the Travis Peak or Hosston sands which carried good shows of oil in the 1 J. L. Wilson. This Smackover test had been drilled to a depth of 12,250 ft. in salt. Top of salt was picked at 12,219 ft from Schlumberger log and side-wall cores. Nine feet of sand was present immediately above the salt. A total of 94 samples were attempted, the best shows being in samples from sand body 7,730-66 ft. where a total of 19 samples were attempted and recovered from this interval. All had good oil odor and yellow fluorescence. The deepest show was noted in samples at 7,870-72 ft. These were from sand body 7,865-92 ft.

At last report, operators were taking A-1 side-wall cores in the Cotton Valley and were to also take several in the Travis Peak. If this makes a good well in the Travis Peak, it will open up a new horizon to shoot at in future exploration.

In Adams County, ½ mile south of Natchez, Humble Oil & Refining Co. is now installing pumping equipment after attempts to complete the D-1 Mrs. C. L. S. McKittrick as a flowing well were unsuccessful. Last report of the testing was that the well flowed by heads 60 bbl. of oil daily through ⅛-in. choke with tubing pressure ranging from zero to 100 psi.

Also in Adams County, approximately 9 miles south of Natchez, Humble is still in the process of having pumping equipment installed at the 1 Mrs. Roane F. Byrnes, 13-5n-3w. It was not reported how soon testing operations will begin.

In the newly discovered Possum Corner field, Wilkinson County, Mississippi, American Republics Corp. is running casing on the 2 Crosby Lumber & Manufacturing Co., 4-4n-2w. This test is an east offset to the field discovery well, Danciger Oil & Refining Co. 2 G. W. Armstrong. Core description of sand at 5,122-28 ft. noted good oil odor and fluorescence. A drill-stem test in open hole at 5,123-28 ft., using ¼-in. top and ⅝-in. bottom chokes, recovered 90 ft. of gas-cut mud and 150 ft. of salt water after being open 30 minutes. Top of the Wilcox was picked on Schlumberger log at 4,856 ft., which is 11 ft. higher structurally than in the above mentioned discovery well. The top of the sand with show of oil is 23 ft. lower than the producing sand in the discovery well.

**MISSISSIPPI WILDCAT FAILURE**

Jefferson County: Danciger Oil & Refining Co. 1 Lula Shields, 60-9n-1w, dry, TD 10,087 ft.

**ALABAMA WILDCAT FAILURE**

Baldwin County: Gulf Refining Co. 1 W. M. Carney Mill Co., et al, 16-2n-4e, dry, TD 6,680 ft.

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## MICHIGAN

### Two Successful Tests Completed in Michigan

MOUNT PLEASANT.—Although general activity in Michigan was suffering from the usual winter and first-of-the-year letdown, two wildcat oil discoveries were completed in the state.

The discoveries, one in Allegan County and the other in Saginaw County, were not too significant in themselves but may lead to further developments which might prove to be important.

In Allegan County Universal Drilling Co. had a small 10-bbl. well at the 1 Berry, NE NE NW 21-3n-13w, Monterey Township. Traverse lime producing horizon was topped at 1,823 ft. Pay showed at 1,825-27 ft., and the hole was bottomed out at 1,827 ft. Well was rated good for 1 bbl. natural and 10 bbl. after acidization with 500 gal.

In Saginaw County Graham Wilcox had a new Dundee zone discovery at his 1 Shaw, SE SE NE 25-10n-6e, Birch Run Township. Well showed from 100 to 300 ft. of free oil in 40 hours at 2,522 ft. and was reported to have flowed at the rate of 40 bbl. a day on initial tests after acid treatment with 1,000 gal. Production declined to an average 25 bbl. after first 2 days, and the well will be reacidized at a later date. Dundee top was logged at 2,460 ft. and tools were racked at 2,522 ft., total depth. Wildcat is located about 3 miles east of the Arbela Dundee oil pool.

New flowing wells were drilled in both the Paris Traverse oil pool, Green Township, Mecosta County, and in the South Adams Richfield zone pool, Adams Township, Arenac County, to assure continued drilling in these two pools during the current year.

**MICHIGAN SUCCESSFUL WILDCATS**

Allegan County, Monterey Township: Universal Drilling Co. 1 Berry, NE NE NW 21-3n-13w, Traverse 1,823 ft., 10 bbl., TD 1,827 ft.

Saginaw County, Birch Run Township: Graham Wilcox 1 Shaw, SE SE NE 25-10n-6e, Dundee 2,460 ft., 40 bbl. after 1,000 acid, TD 2,522 ft.

**MICHIGAN WILDCAT FAILURES**

Allegan County, Casco Township: Louis Zellman 1 Compton, SE SW SE 5-1n-16w, Traverse 1,169 ft., dry, TD 1,196 ft.

Kent County, Algoma Township: Socony-Vacuum Oil Co., Inc., 1 Pennington, SE SE NW 10-9n-11w, Traverse 2,310 ft., dry, TD 2,341 ft.

## LA.-ARK.

### Claiborne Parish Well Continues Testing

SHREVEPORT—Ohio Oil Co. and Gulf Refining Co. 1 O. L. Martin, 3-22n-7w, Claiborne Parish, continued testing on perforations at 9,025-80 ft. in the Stray sand of the Cotton Valley formation. The well made 30 bbl. of oil a day, flowing through 12 64-in. choke. After a 500-gal. mud-acid treatment it flowed a small amount of oil, by heads. Recovery was not reported.

Gulf Refining Co. 1 M. M. Kinnebrew, 26-20n-7w, was drilling at 10,067 ft., in unidentified formation, but operators believed it was still in the Cotton Valley.

In Franklin Parish, 5 miles north of Winnsboro, Oil Exchange, Inc., 1 J. Greenwald, 6-14n-8e, was held up by a fishing job at 5,084 ft. By samples, it had top on the Wilcox at 1,842 ft., and the Midway at 3,133 ft. Projected depth was 6,000 ft., or to the Paluxy.

Arkansas Fuel Oil Co. 20-A Tremont Timber Co., 33-10n-2e, LaSalle Parish, was drilling in the upper Cretaceous at 6,703 ft., with no shows reported. Location is 1 mile west of the Olla field.

Six miles northeast of Olla field, Placid Oil Co. 127 Louisiana Central, 14-11n-3e, was drilling at 7,380 ft., in the Tuscaloosa.

In Lincoln Parish, Southwest Natural Gas Producing Co. 1 M. E. Colvin, 31-20n-2w, was spudded in last week and at last report had reached 5,493 ft., in the Travis Peak, topped at 5,338 ft., by samples, on elevation of 167 ft.

H. Barksdale Brown 2 Mahony, 44-17n-13e, 2 miles northeast of Tallulah, was drilling below 4,561 ft. in the upper Cretaceous. It cored sand and shale with no shows from 3,950-65 ft.

In Union County, Arkansas, C. H. Murphy & Co. 1 Gregory, 28-19s-18w, was drilling ahead at 9,282 ft., in the Smackover, topped at 9,271 ft., by samples. A core from 9,275-82 ft. recovered 2 ft. of tight, oolitic lime with good oil shows, and 5½ ft. of porous lime saturated with oil.

Murphy's Smackover test in El Dorado field, the 1 Pepper, NE SE NE 32-18s-15w, was fishing stuck drill pipe at 7,230 ft. Cores from 7,100-7,210 ft. recovered sand and shale with shows of oil.

Four miles southeast of El Dorado, Spartan Drilling Co. 1 C. Everett, SE SE NW 26-17s-15w, was drilling below 2,981 ft. in the upper Cretaceous.

Spartan Drilling Co. 1 Sallie Irby, NE SE 22-18s-17w, southeast of the Schuler field, was drilling below 4,467 ft.

#### NORTH LOUISIANA SUCCESSFUL WILDCAT

Union Parish: New field 9 mi. NE Lisbon area—Z. Brooks 1 Nelson, SW NE 29-23n-3w, TD 9,805 ft., elev. 194 ft., perforated Smackover 9,320-26 ft., flowed by heads 114 bbl. 42.6 -gravity oil a day, ¾-in. choke, TP 100 psi., GOR 438 cu. ft., top Smackover 9,317 ft.

#### NORTH LOUISIANA WILDCAT FAILURE

Bossier Parish: Kerr-McGee Oil Industries, Inc., 1 Kaufman, 8-16n-11w, dry, TD 6,013 ft., elev. 198 ft., Nacatoch 862 ft., Saratoga 1,140 ft., base Annona 1,480 ft., Buckrange 1,620 ft., base Austin 2,440 ft., Tuscaloosa 2,475 ft., Paluxy 2,500 ft., Massive anhydrite 4,022-70 ft., base Rodessa 4,520 ft., James 4,802 ft., Pine Island 5,030 ft., Sligo 5,200 ft., Pettit porosity 5,290-5,304 ft., Travis Peak 5,575 ft.

#### ARKANSAS WILDCAT FAILURES

Ouachita County: Ormond Corp. 1 B. F. Lawler, SW NE NW 29-14s-18w, dry, TD 3,306 ft., Nacatoch 1,404 ft., sand 1,428 ft., base Annona 1,934 ft., Tokio 2,302 ft., James 2,407 ft., Sligo 2,607 ft., Travis Peak 2,765 ft.

Lyons & Prentiss 1 Lester Realty Corp., NW NE SW 31-14s-19w, dry, TD 3,601 ft., elev. 272 ft., Arkadelphia 1,393 ft., Nacatoch 1,515 ft., base Annona 2,097 ft., Tokio 2,485 ft., cut 300-ft. fault at 2,790 ft., Travis Peak 2,967 ft.

## APPALACHIAN FIELD

### West Virginia Venture Is Good Gas Well

PITTSBURGH—In Steele district, Wood County, West Virginia, Godfrey L. Cabot, Inc., 1-1301 Thomas P. Beard, wildcat previously reported showing for 25,000,000 cu. ft. of gas in the Oriskany sand, was completed gaging 14,391,000 cu. ft. of gas natural. Initial rock pressure was 1,700 psi. in 24 hours in the sand topped at 5,360 ft., gas at 5,362 ft. This company is drilling 1313 G. P. Burkhart at 3,819 ft. Columbian Carbon Co. 1139 Augusta Carson Radcliffe is drilling at 3,500 ft. and the company's 1140 F. B. Allman at 2,355 ft. In this immediate area but in Tucker district, Wirt County, four wells are drilling: Godfrey L. Cabot, Inc., 1317 Thomas Hughes at 2,588 ft.; United Fuel Gas Co. 6549 S. O. Toncray at 1,040 ft., the 6550 T. S. Counts at 1,490 ft., and its 6552 J. R. Moore at 200 ft. In Portland district, Preston County, Hope Natural Gas Co. 9391 John & Edna Murphy, elevation 2,152 ft., topped the chert at 5,218 ft.; Snee & Eberly 2 Cora E. Lewis, elevation 1,953 ft., hit that zone at 5,315 ft. Both wells are being cased with 7-in. casing at these depths. Two shallow sand gas wells were reported: Union district, Jackson County, Hope Natural Gas Co. 9332 G. W. Baier, 1,309,000 cu. ft. of gas in brown shale, total depth 3,961 ft.; Marsh Fork district, Raleigh County, Columbian Carbon Co. C-2-


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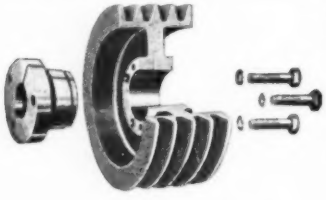

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1138 C. C. Dickinson, 1,039,000 cu. ft. of gas in the Ravencliff sand, total depth 1,397 ft.

In Wharton Township, Fayette County, Pennsylvania, William E. Snee et al 3 Indian Creek Coal & Coke Co., elevation 2,615 ft., is drilling at 7,307 ft. with no further show of gas; Georges Township, Orville Eberly et al 1 N. E. Murphy, elevation 2,560 ft., is shut down at 7,126 ft. In Napier Township, Bedford County, South Penn et al, Snee & Eberly 1 Jesse B. Miller, elevation 1,666 ft., is drilling at 5,846 ft.

**WEST VIRGINIA SUCCESSFUL WILDCAT**

Wood County, Steele district: Godfrey L. Cabot, Inc., 1-1301 T. P. Beard, 14,391,000 cu. ft. of gas natural, Corniferous lime 5,243 ft., Oriskany sand 5,360 ft., gas 5,362 ft., TD 5,362 ft.

## SOUTH LOUISIANA

### California Co. Completes Wildcat for 245 Bbl.

NEW ORLEANS—The California Co. has completed the 1 North Main Pass Unit for an oil discovery approximately half way between the Grand Bay and Main Pass Block 69 fields of Plaquemines Parish. The discovery was credited with 245 bbl. of oil per day through 9/64-in. choke. It is flowing through perforations at 9,026-47 ft., where operators previously reported an oil sand logged by electric survey. A deeper oil sand, at 9,738 ft., is also present in the well, which was drilled to 9,813 ft.

Gulf Refining Co. has made a new sand discovery for the Quarantine Bay area of Plaquemines with completion of the 1 Louisiana State Lease 1,349. The well was finaled for 198 bbl. of 38°-gravity oil per day through a 5/32-in. choke, with 2,900 psi flowing pressure on the tubing. Hole is bottomed at 10,745 ft.

Off Terrebonne Parish, Magnolia Petroleum Co. B-1 State Lease 673, Eugene Isle Block 58 wildcat, has been completed as a gas-distillate producer. Through a 16/64-in. choke the well flowed 7 bbl. condensate and 449,000 cu. ft. of gas through perforations at 11,206-08 ft. The well was drilled to a depth of 13,800 ft. Gravity was 54° and the tubing pressure was 3,696 psi.

Ohio Oil Co. has resumed drilling operations in the 1 E. W. Brown, Jr., Calcasieu Parish wildcat, after coring and running a drill-stem test. Details of the test have not been released. Operators are currently making hole below 7,900 ft. A slight oil show was picked up around 7,666 ft. after running log. The test is located approximately 5 miles northwest of Black Bayou, 20-11s-13w.

**SOUTH LOUISIANA SUCCESSFUL WILDCATS**

Acadia Parish: Gas-condensate discovery—Hawkins & Jayred 1 Edmond Young, 31-7s-2w, on West Flank of West Tepetate Dome, top pay 9,129 ft., TD 9,490 ft., perf. 9,129-41 ft., IP: 16 bbl. condensate per day, plus 1,450,000 cu. ft. gas per day, 1/8-in. choke, TP 1,300 psi.

Jeff Davis Parish: Extension to Welsh field—Stanolind Oil & Gas Co. 1-A Ervine & Bishop, 21-9s-5w, NE extension to Welsh, top pay 7,713 ft., TD 6,800 ft., perf. 6,713-188 ft., IP: 178 bbl. oil per day, 6/64-in. choke, GOR 400, TP 1,050 psi., 41.2° gravity.

Plaquemines Parish: Oil discovery—The California Co. 1 North Main Pass Unit, 22-20s-19e, top pay 9,026 ft., perf. 9,026-47 ft., TD 9,813 ft., IP: 350 bbl. oil per day, 9/64-in. choke, GOR 710, TP 1,525 psi., 32.9° gravity.

Rapides Parish: New sand at Big Island—Union Producing Co. and M. H. Marr 1 Beaubouef, 11-4n-3w, top pay 5,134 ft., TD 6,960 ft., perf. 5,134-36 ft., IP: 211 bbl. oil per day, 1/4-in. choke, GOR 516, TP 300 psi., CP 575 psi., 41° gravity.

Terrebonne Parish: Oil discovery Eugene Isle, Block 58—Magnolia Petroleum Co. B-1 State Lease 673, offshore, top pay 11,206 ft., TD 13,800 ft., perf. 11,206-08 ft., IP: 7 bbl. distillate and 449,000 cu. ft., gas daily, 16/64-in. choke, 54° gravity, TP 3,696 psi.

**SOUTH LOUISIANA WILDCAT FAILURES**

Beauregard Parish: Magnolia Petroleum Co. 1 Harry B. Manning, 25-3s-9w, 3½ mi. SE of Bon Ami townsite, dry, TD 10,108 ft.

St. Mary Parish: Atlantic Refining Co. 2 State 4,204, NW Bayou Carlin, NW corner of State Tract 4,204, West Cote Blanche Bay, dry, TD 12,222 ft.

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# OHIO, KENTUCKY

## Knox County Offset Reports Good Shows

COLUMBUS.—The H. E. Perkins 3 Virgil Wolfe, Section 18, Jackson Township, Knox County, the west offset to the 1 Burch, logged the Clinton at 3,020-61 ft. with a good showing of both oil and gas. After shot, the well made 60 bbl. and 200,000 cu. ft. gas in 24 hours. A mile and one-half to the north, the Wm. Larrick 1 Early-wine will not be shot for the present as it is making 10 bbl. of oil and 600,000 cu. ft. gas natural.

In Hopewell Township, Licking County, W. C. Adair's 2 Wm. Bratton topped the Clinton at 2,859 ft. and at 38 ft. in it gaged 1,040,000 cu. ft. The well will be drilled through the sand and tubed.

The Ohio Fuel 3 Ethel Hull, Section 35, York Township, Morgan County, drilled the Clinton sand at 3,812-55 ft. and gaged 151,000 cu. ft. gas with a good showing of oil. The well was started for the Medina and will be drilled on down, and if productive, will be produced from both sands.

Moving of rigs and machines is nearly at a standstill due to ground conditions, and only 12 locations were reported this week, 5 being in Perry County and 2 each in Ashland and Tuscarawas. Wells completed totaled 9, with Ashland field having 3 and Cambridge 2.

### OHIO SUCCESSFUL WILDCAT

Lorain County, Henrietta Township: H. A. Bachman 1 fee, Lot 24, Newburg 1,635-70 ft., 7 bbl., TD 2,201 ft.

### WESTERN KENTUCKY

OWENSBORO.—Most wildcat operations in western Kentucky were shut down the past week and field work generally was delayed because of high water or inaccessible roads. Only two late successful completions have been reported, one in the Griffith pool, Daviess County, and the other in the Glenville area, on the McLean County side.

In the former pool, Yingling Oil Co. got a 52-bbl. pumper in its 5 Joe Kurtz, 9-P-28. Completion was in Tar Springs sand at 1,112-26 ft. At Glenville, Basin Drilling Co. completed 6 Oost, 17-N-28, pumping 60 bbl. per day from McClosky lime at 1,933-40 ft.

Nash Redwine 3 Bower, 6-Q-22, third prospective producer for the new Diamond Island pool, Henderson County, is standing with casing cemented following a drill-stem test in Rosiclare lime at a total depth of 1,850 ft., in which 1,700 ft. of clean oil was recovered.

### WESTERN KENTUCKY SUCCESSFUL WILDCAT

Henderson County: Cherry-Kidd 1 S. R. Wilson, NW SW SE 8-O-22, IP 140 bbl., Cypress 2,183-92 ft., TD 2,194 ft. (Discovery well Corydon South pool.)

### EASTERN KENTUCKY

ASHLAND.—In Elliott County and along Newcombe Creek C. C. Haynes et al have a prospective pool extension well at their 1 Ad Lewis. Preliminary tests indicate 10 bbl. of oil per day from the Weir (Mississippian) sand at a total depth of 916 ft. More drilling is expected in the immediate area.

In northern Lawrence County 5-U-82 W. S. Perry et al are drilling at 250 ft. on 1 Walter Young an attempt to extend Bolts Fork production to the south. Meanwhile, further north at Perry et al 1 Phil Preece cleaning out is still in progress in the Berea sand 1,758 to 1,844 ft. total depth.

In Martha pool, northwestern Johnson County, Ashland Oil & Refining Co. has recently completed 61 and 62 Sanford Lyons for approximately 25 bbl. per day each with production from the Weir sand a total depth of 934 and 939 ft., respectively.

### EASTERN KENTUCKY WILDCAT FAILURE

Fleming County: Ed Little et al 2 John Riley 14-V-71, dry, TD 2,132 ft., Tyrone 1,010 ft., St. Peter 1,570 ft., Knox 1,590 ft., water.

### INDIANA

EVANSVILLE.—A half-mile south extension of the new pool opened by National Associated Petroleum Co. north of Plainville, Daviess County, is in prospect at C. E. Skiles and associates 1 Keller-Gill, NE NW NE 11-4n-7w. Good showings of oil and gas were found in a succession of breaks in the Salem lime from 1,145 ft. to 1,208 ft. Hole was drilled to 1,221 ft. and casing run to 1,216 ft. Location is at the west edge of the Plainville townsite.

Oil wells so far completed in the pool produce from McClosky lime at depths around 750 ft. Two wells have been completed with a third being in process of completion. A twin to the discovery well was drilled to the Salem lime, and with pay at 1,157-72 ft., tested an estimated 3,000,000 cu. ft. of gas daily. Operators plan to deepen the hole for a look at the Devonian before completing the well.

V-T Drilling Co. 1 Helm-Stith, NW SW NW 23-6s-8w, north offset to the discovery well of the Pelzer pool, Warrick County, pumped 20 bbl. of oil and 30 bbl. of water per day at completion in Cypress sand at 1,554-57 ft. A west offset, 1 Minnie Addington, NE SE NE 22-6s-8w, is cleaning out to test the pay at 1,550-59 ft. The pool, opened late last year, now has three wells on production.

### INDIANA WILDCAT FAILURE

Gibson County: V. R. Gallagher 1 Perry Fleener, SW SW NW 21-3s-12w, dry, TD 2,789 ft.

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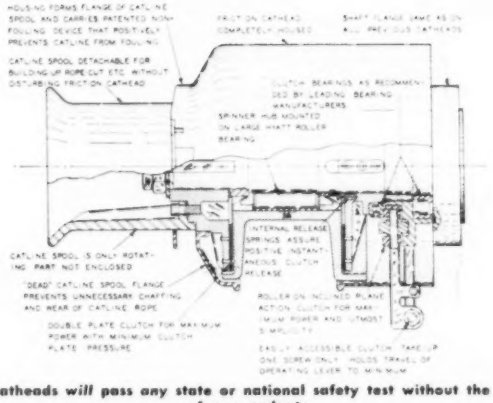
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TULSA, OKLAHOMA


# ROCKY MOUNTAIN

## Development Drilling in New Gas Area Planned

DENVER—Apparently Ohio Oil Co. will continue development drilling in its new Huntsman gas area, north of Sidney, Cheyenne County, Nebraska. Location has been made at 1 O. A. Mather, NW SE NW 12-14n-50w, $1^1_2$ miles northwest of the discovery, and a second rig is reportedly moving to the area with the location for this extension not announced. Ohio's 1 Cruise, NW SW SE 7-14n-49w, made 12,500,000 cu. ft. of gas on open-flow test from perforations opposite Third Dakota 2 weeks ago. This area is 6 miles southwest of the company's Gurley pool, where oil is produced from the first and third Dakota sands. Ohio has apperently completed its immediate drilling program at Gurley, with seven pumping oil wells, one injection well, and two suspended operations. There is immediate need for gas in the general western Nebraska area, where the present supply is from Central Wyoming fields, and it is considered probable that Ohio will continue drilling in Huntsman field until definition of reserves is obtained.

Following discovery of gas at Huntsman, the lease play throughout the Denver-Julesburg Basin of western Nebraska, northeastern Colorado and southeastern Wyoming increased at a rapid pace, until it is now estimated well in excess of five million acres is under lease in the area. Stanolind Oil & Gas Co., which had acquired a block in Garden County several months ago, has recently completed a play throughout Morrill, Garden, and southern Box Butte counties, acquiring an estimated one million acres. Sinclair Oil & Gas Co., The Texas Co., Sharples Oil Corp., Carter Oil Co., Superior Oil Co., and others have lease blocks throughout the area, and leasing is reportedly continuing. Recently Pure Oil Co., Sinclair, and others reportedly acquired lands throughout Laramie and Goshen counties, Wyoming, and Carter, Texas, Stanolind, and others leased in Logan, Sedgwick, Phillips, Yuma, and Washington counties, Colorado. It is considered probable that this basin will have more geophysical activity during the coming year than any other area of the entire Rocky Mountain region.

Keniland Oil Co. has plugged its 1 Isbrantsen-Government, SE SE SE 15-40n-78w wildcat in the East Salt Creek area, Natrona County, Wyoming. The well was drilled to 7,902 ft., total depth, in Embar topped at 7,718 ft. The well was of interest as the first in this general area southeast of the Sussex area and east of the Salt Creek field where production has been developed in Wall Creek and other sands. The Keniland well had interesting shows of oil and gas in the Sussex sand and first and second Wall Creek sands, but drill-stem test failed to have recovery. The operator reports that additional drilling may be undertaken in this area.

### WYOMING SUCCESSFUL WILDCAT

Sussex, Johnson County: Continental Oil Co. 10 Unit, SE NE SW 23-42n-78w, TD 7,610, PB 6,450, acidized through perforations 6,375-6,409 (170 holes) 3,000 gal., flowed 6 bbl. per hour, 40.5 -gravity oil, estimated potential 144 bbl. per day. Mesa Verde 2,972, Steele 3,381, Sussex 3,991, Shannon 4,506, first Wall Creek 6,372, Dakota 7,483, Lakota 7,565.

### WYOMING WILDCAT FAILURES

Moorcroft, Crook County: William Hamm, Jr., 1 Govt.-Cox, SE NE SE 3-50n-68w, TD 5,492, dry, Newcastle Series 5,440 ft.

Moss Agate area, Niobrara County: Wilson Oil Co. 1 C. F. Sheaman, C SW SE 17-39n-60w, TD 1,516, dry, Lakota 1,502 ft.

### COLORADO WILDCAT FAILURES

Iliff area, Logan County: E. K. Carey-Bay Petroleum-Plains-Republic Natural Gas 1 Conklin, C NW SW 23-10n-51w, TD 4,823, dry, Niobrara 3,600, Timpas 3,915, Codell 4,010, Greenhorn 4,210, Dakota

Group 4,443, Fuson 4,630, Lakota 4,748.
Excelsior Divide, Mesa County: Carl Losey 1 Hynes, NW NW SW 24-2n-3w, dry, TD 1,600, show oil 1,050.

**MONTANA WILDCAT FAILURES**

West Yellowstone area, Gallatin County: Fred Kornowsky 1 Govt., NE SW SW 21-13s-5e, dry, TD 560.
Shawmut Anticline, Wheatland County: Mon-O-Co Oil 1 Erickson, SE NW NW 24-7n-18e, dry, TD 4,352, Kootenai 2,010, third Cat Creek 2,258, Ellis 2,602, Amsden 2,772, Kibbey 3,125, Charles 3,279, Madison 4,175.

**NEBRASKA WILDCAT FAILURES**

East Gurley, Cheyenne County: C. E. Stout 1 Kratz, C SW SE 7-16n-47w, TD 4,843, dry, Niobrra 3,495, Timpas 3,748, Codell 3,858, Greenhorn 4,033, Dakota 4,356, Fuson 4,478, Lakota 4,635.
Ester area, Dawes County: Hollingsworth-Newell et al 1 Neeland, C NE SE 30-30n-48w, TD 2,913, dry, perf. 2,560-66, 24 holes, Newcastle 2,027-2,306, Cloverly 2,486, Morrison 2,767, Sundance 2,872.
Deuel County: Cope et al 1 Schwartz, C NE NW 32-13n-44w, dry, TD 4,325 ft.

# OKLAHOMA

## Jefferson County Wildcat Finds Shallow Sand Pay

SUN DRILLING CO. has uncovered what appears to be a promising new pool in Jefferson County, in the southern part of the state, at its 1 Seay, NE SE SE 22-6s-5w. In a drill-stem test of sand showing oil at 2,514-23 ft., the well got a recovery of 640 ft. of 36.2° oil. Additional saturation was found in an interval at 2,547-68 ft., where another drill-stem test gave a recovery of 75 ft. of oil and 60 ft. of oil-cut mud. With hole drilled to a total depth of 2,671 ft., 7-in. casing has been run to 2,648 ft., and will be perforated in prospective zones for testing. Nearest production is in the Spring pool, about $2^3/_4$ miles to the west.

Southeast of gas production in the Pawhuska gas field, Osage County, and about 2 miles from nearest oil production, J. E. Reamers and associates 1 Osage, NW SW SW 10-25n-9e, is a prospective Bartlesville sand discovery. Cleaning out following an 80-qt. shot, the well swabbed 4 bbl. of oil per hour for 2 hours. Sand showing oil was logged at 2,086-2,123 ft. Hole is open below 2,076 ft., where $5^1/_2$-in. casing was run.

Bay Petroleum Co. and Mercury Drilling Co. 1 Brezny, SW SW NE 28-12n-6e, a wildcat near Prague, Lincoln County, swabbed 24 bbl. of oil and 75 bbl. of water in 24 hours in testing Hunton lime, in which casing run to 4,545 ft., was perforated at 4,400-18 ft. Bottom of hole is 4,776 ft. Prior to swabbing tests, formation was given a 3,000-gal. acid treatment. A squeeze job is being undertaken to shut off water.

Barnsdall Oil Co. 1 Hughes, NE NE NE 28-8n-10e, prospective new discovery located $1^1/_2$ miles west of production of the Greasy Creek district and about $1^3/_4$ miles southeast of the Yeager pool, in north central Hughes County, has completed swabbing tests and is being put on the pump for completion. On a late gage after a 16-qt. shot at 3,315-23 ft. in Cromwell sand, the well swabbed 27 bbl. of oil and 10 bbl. of water in 24 hours. Top of Cromwell sand is 3,316 ft., with bottom at 3,326 ft.

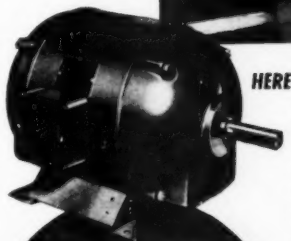
Warren Wright and associates 1 Malloy, NW NW NW 30-17n-5e, north extension to the old Agra pool, 5 miles south and west of Cushing, swabbed 2 bbl. in the first hour while testing Simpson dolomite, in which casing was perforated at 4,188-4,212 ft. Dolomite top was 4,181 ft. Bottom of the hole is at 4,249 ft. in Wilcox sand, with 7-in. casing at 4,245 ft.

**OKLAHOMA WILDCAT FAILURES**

Coal County: Lee Drilling Co. 1 Polk, SE SW SW 23-2n-10e, dry, TD 2,900 ft., sand 2,140 ft., 2,486 ft., and 2,660 ft.
Cotton County: Somers 1 Tabvenoid, NW NW SW 12-3s-11w, dry, TD 1,810 ft., conglomerate 1,430 ft. and 1,616 ft., lime 1,211 ft.
Creek County: Scott 1 Denham, NW SE SW 23-18n-10e, dry, TD 2,922 ft.
Dewey County: Oklahoma Natural Gas Co. 1 Malatka, SW SW NE 1-17n-15w, dry, TD 8,131 ft., Foraker 4,452 ft., Pewhuska 5,029 ft., Oread 5,992 ft., Avant 6,461 ft., Dewey 6,732 ft., Bartlesville 6,911 ft., Layton 7,731 ft.
Lincoln County: Cameron 1 Wilson, NW SE SW 13-12n-6e, dry, TD 3,558 ft., Hogshooter 1,696 ft., Layton 1,786 ft., Checkerboard 2,080 ft., Cleveland 2,131 ft., Oswego 2,950 ft., Prue 2,955 ft., Verdigris 3,169 ft., Skinner 3,196 ft., lime 3,409 ft., Red Fork 3,449 ft.
Marshall County: Helmerich & Payne 1 Beard, NE NE NE 26-5s-5e, dry, TD 6,071 ft., Woodford 4,589 ft., Mississippian Caney 3,536 ft., Springer 3,809 ft., Woodford 4,001 ft., Pennsylvanian Caney 4,012 ft., Mississippian Caney 4,144 ft., Sylvan 4,764 ft., Viola 4,879 ft., bromide dense 5,410 ft., sand 5,575 ft., 5,809 ft., and 5,915 ft.
Payne County: Dirickson 1 Gibbs, SE SE NE 8-17n-6e, dry, TD 3,405 ft., Hogshooter 1,893 ft., upper Layton 1,951 ft., lower Layton 2,020 ft., Mississippian 3,388 ft.

**OKLAHOMA SUCCESSFUL WILDCATS**

Comanche County: Dall 1 Franklin, SW NW NE 22-2n-11w, pumped 1 bbl. of 33°-gravity oil per day from broken sand at 124-33 ft., TD 290 ft.
Lincoln County: Falcon-Seaboard 1 Strader, SE NW NE 8-13n-3e, flowed 256 bbl. of 40.5°-gravity oil per day from Bartlesville at 4,687-92 ft., TD 4,693 ft.
Major County: Andrade III 1 Gauley "B," E SW SW 35-22n-10w, flowed 277 bbl.



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of oil per day from Manning at 6,752-6,852 ft., TD 6,880 ft.

Oklahoma County: New pay in Coffee Creek district—Harper-Turner and Gulf 1-A Beck, NW NW SW 15-14n-2w, pumped 115 bbl. of 42°-gravity oil per day from Wilcox at 6,152-63 ft., TD

## ILLINOIS

### Wayne County Wildcat Shows for Production

MATTOON.—Another new pool, located 5 miles northeast of Wayne City, Wayne County, appears to have been found by Robinson-Puckett, Inc., in 1 Manahan, SW NW NE 23-1s-6e, which flowed clean oil in a drill-stem test of McClosky lime. Test was made of an interval at 3,187-88 ft. with McClosky logged from 3,184 ft. No gage was reported. In the test, gas showed within 3 minutes and oil showed within 40 minutes after the tool was opened. Hole has been drilled to 3,294 ft. and casing run to 3,285 ft. The location is in the area between the south ends of the Johnsonville Consolidated pool to the west and the Clay City-Noble Consolidated pool to the east, and is about a mile from nearest production. A southeast offset has been started.

M & M Drilling Co. 1 Hubele, SW NE NE 3-5s-9e, located about a half mile east of other wells in the North Carmi pool, White County, is proving not only an extension but also a new pay zone discovery for that area while testing Tar Springs sand at 2,573-83 ft. Without acidizing or shooting, it swabbed 5 bbl. of oil per hour while cleaning out. A second well, 1 Randall Williams, NE SE NW 3-5s-9e, located about a half mile to the southwest, also found good showings in the same sand at 2,606-20 ft., and is preparing to test. It was drilled to 3,270 ft. and plugged back to 2,969 ft. The area is 3 miles northwest of Carmi.

Wiser Oil Co. 1 Slunaker, SW SW NW 7-2n-11e, located about a half mile south of the recent McClosky lime discovery made by Alva C. Davis and Russell J. Johnson in the area 2 miles south of Calhoun, Richland County, swabbed 6 bbl. of oil per hour in starting production tests of the same pay at 3,268-81 ft. The discovery well, 1 Moore, NE NE SE 12-2n-10e, pumped and flowed 14 bbl. of oil per hour with testing still under way. Five other drilling operations are under way in the area, which is about 2½ miles from production in the Parkersburg Consolidated area.

#### ILLINOIS SUCCESSFUL WILDCATS

Clinton County: T. M. Conrey 1 King, SE SE NW 23-3n-3w, IP 10 bbl., Benoist 1,147-50 ft., TD 1,151 ft.

Richland County: R. P. Johnson 1 Moore, NE NE SE 12-2n-10e, IP 225 bbl., McClosky 3,270-72 ft., TD 3,280 ft. (New pool.)

#### ILLINOIS WILDCAT FAILURES

Clinton County: T. M. Conrey 1 Dickemper, NW NW NW 26-3n-3w, dry, TD 1,175 ft.

Coles County: Zink et al., 2 Childress, NE SW NE 19-13n-14w, dry, TD 500 ft.

Edgar County: National Associated Petroleum Co. 1 Smithson, SE SW NW 31-13n-10w, dry, TD 2,039 ft.

Edwards County: R. P. Johnson 1 Morgan, NE SE NE 9-1s-14w, dry, TD 3,104 ft.

Fayette County: P. Doran et al., 1 Summan, SW NE SW 17-5n-2e, dry, TD 2,141 ft.

P. Doran et al., 1 Larimore, SE SE NE 25-9n-3e, dry, TD 1,690 ft.

Jasper County: J. N. Miller 1 Heap, SW SW NE 11-5n-9e, dry, TD 3,088 ft.

Jefferson County: Sohio Petroleum Co. 1 Wilbanks, SW SW NE 11-4s-2e, dry, TD 2,873 ft.

Madison County: J. A. Pierve 1-A Keller, NW NE SE 25-5n-5w, dry, TD 692 ft.

## KANSAS

### Rice County Wildcat Shows for Production

SOHIO PETROLEUM CO. and Derby Oil Co. seem assured of a good producer in their 1 Reif, NW NE SW 31-18-10, a wildcat located about 1½ miles west of the Ringwald pool, western Rice County. Following a 500-gal. acid treatment in Arbuckle lime at 3,273-78 ft. (—1,526-31 ft.), the well swabbed at the rate of 5 bbl. per hour for 15 hours. With an additional 1,500 gal. of acid, it swabbed 4½ bbl. per hour for 20 hours. The well also is a prospective producer in the Lansing-Kansas City, in which a previously reported drill-stem test at 3,028-40 ft. gave a recovery of 120 ft. of oil and 100 ft. of oil and gas-cut mud.

About a mile to the northeast of the Sohio and Derby well and about the same distance northwest of the Ringwald pool, Robert L. Williams 1 Arensman, NE NE SE 30-18-10, has run casing to test oil showings encountered in Lansing-Kansas City lime, topped at 3,004 ft. (—1,247 ft.). Most promising showings were in an interval at 3,146-54 ft., although a drill-stem test at that depth resulted only in a mud recovery. Hole was drilled to a total depth of 3,353 ft. in cherty conglomerate, topped at 3,302 ft. without further shows, and then was plugged back to the prospective zone. Casing point is on top of the zone.

Skelly Oil Co. 1-A Kansas, SW SW NW 1-14-19, which opens a new producing area 3 miles west of Hays, Ellis County, established a potential of 121 bbl. of oil, plus 33 per cent water, daily at completion in Arbuckle lime.

Franco Central Oil Co. and Pickrell Drilling Co. 1 Klug, NE NE SW 8-17-12, another wildcat located 3½ miles south of Beaver, northern Barton County, pumped 132 bbl. of oil per day on potential tests. Production is from the upper 2 ft. of Arbuckle lime, topped at 3,377 ft. (—1,472 ft.) with bottom at 3,379 ft.

#### KANSAS SUCCESSFUL WILDCATS

Ellis County: Alpine Oil & Royalty Co. 1 Leiker, SE SE SW 18-15s-17w, pumped 152 bbl. 32.1°-gravity oil per day from Arbuckle at 3,571-85 ft., TD

Harvey County: Springer & Harper Drilling Co. 1 Leffleman, SW NE SE 3-24s-1e, pumped 20 bbl. 34°-gravity oil per day from Kansas City at 2,687-92 ft., TD

Russell County: New pay in Beisel field—C & S Well Service 1 Beisel, SW SW NW 15-14s-12w, pumped 15 bbl. of oil per day from Lansing at 3,126-34 ft., TD 3,284 ft., old well worked over.

#### KANSAS WILDCAT FAILURES

Butler County: Cox & Burns et al 1 Paul, NE NE NE 26-25s-3e, dry, TD 2,752 ft., lime 1,975 ft., Kansas City 2,258 ft., conglomerate 2,702 ft., Mississippi chert 2,719 ft., Mississippi lime 2,727 ft.

Clay County: El Capitan Oil Co. et al 1 Hill, NW NW SW 15-9s-4e, dry, TD 2,650 ft., Hunton 2,110 ft., Viola 2,602 ft.

Rooks County: Skelly Oil Co. 1 Desmarteau, NE NW SE 7-9s-20w, dry, TD 3,800 ft., Hoxbar 3,392 ft., Toronto 3,412 ft., Lansing 3,433 ft., conglomerate 3,727 ft., Arbuckle 3,762 ft.

Cook & Galloway Drilling Co. 1 Couture est., SE SE NE 19-10s-20w, dry, TD 2,787 ft., Hoxbar 3,361 ft., Toronto 3,379 ft., Lansing 3,399 ft., conglomerate 3,683 ft., Arbuckle 3,755 ft.

Russell County: Ferrell Drilling Co. 1 Mermis, NE NE SW 33-12s-15w, dry, TD 3,370 ft., anhydrite 913 ft., Topeka 2,705 ft., Hoxbar 2,962 ft., Toronto 2,982 ft., Lansing-Kansas City 3,008 ft., conglomerate 3,284 ft., Arbuckle 3,334 ft.

Stafford County: Petroleum, Inc., 1 Rothgarn, NE SW SE 14-21s-13w, dry, TD

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3,617 ft., anhydrite 842 ft., Hoxbar 3,144 ft., lime 3,268 ft., Lansing 3,285 ft., Viola 3,527 ft., Simpson 3,539 ft., Arbuckle 3,584 ft.

Petroleum, Inc., 1 Pursel, W/2 SW NE 20-21s-13w, dry, TD 3,740 ft., lime 3,346 ft., Lansing 3,359 ft., conglomerate 3,604 ft., Viola 3,609 ft., Simpson 3,658 ft., Arbuckle 3,710 ft.

# CANADIAN FIELDS

## Golden Spike Gets Third Success

CALGARY.—The Golden Spike coral reef has been tapped by a third well, to establish a 540-ft. thickness of Devonian D3 zone from oil-bearing top to the water line at a location ½ mile due north of Imperial Oil Ltd.'s 1 Schoepp discovery well.

The now-assured third success is Imperial-Golden Spike 5, LSD 1, 27-51-27w4, in central Alberta. The D3 zone was reached recently at an elevation 5 ft. lower than D3 top at 1 Schoepp. That discovery well, which showed post-acid potential of 12,000 bbl. daily, penetrated 545 ft. of D3 oil-bearing zone before reaching the water line.

Imperial-Golden Spike 4, ⅝ mile northeast of the first well and ½ mile east of 5, was the first successful follow-up to the discovery. It logged top of D3 zone 1 ft. higher than the discovery, to indicate a maximum pay thickness of 546 ft. It was placed on steady production without fully establishing maximum potential.

The fifth well recenty set 7-in. casing at 5,350 ft., after reaching top of D3 zone, and is now drilling in the zone below 5,700 ft. The well is expected to reach completion depth within the next few days and then start on potential tests.

Golden Spike 5, unlike 1 and 4 which found D2 zone too tight for commercial oil production, topped crude oil in volume in the D2 zone above the rich D3 reef. In so doing it opened up a second pay zone which will be further explored for production in the future. The D2 zone at 5 has been cased off.

Redwater Leaseholds-Campbell 2, first follow-up to the lower Cretaceous oil discovery about 11 miles northwest of Edmonton, has shown oil encouragement in the recent drill-stem test of the Cretaceous interval at 3,686-3,701 ft. During the 1 hour test the well gave a fluid recovery in the pipe consisting of 150 ft. of oil and 50 ft. of oily gas-cut mud. Coring and testing is continuing below 3,701 ft. The well is located in LSD 8, 28-54-25w4, ¼ mile north of the discovery.

Canadian Rockies Oil Co., wholly owned subsidiary of Stanolind Oil & Gas Co., has staked location for a stratigraphic test well in north central Alberta, about 57 miles northeast of Edmonton.

It will be the Stanolind-Smoky Lake 1, LSD 12, 9-61-17w4, about 10 miles north of Smoky Lake town, and will test Devonian possibilities down to around 3,700 ft.

The Cardiff-Edmonton Oil Syndicate has completed its Central Alberta wildcat at Cardiff as a gas well. Prior to being capped, pending market for its product, the well ran a drill-stem test of the Cretaceous interval 3,630-40 ft. and received a maximum natural gas flow of 5,780,000 cu. ft. daily. Potential would be substantially higher if all gas zones had been open during the test.

The well, Cardiff-Giant 1, LSD 9, 26-55-25w4, about 4½ miles southwest of Rio Bravo's recent Excelsior D2 Devonian oil success, obtained gas in the Viking and Cretaceous zones. Hole was carried down to the Devonian at 4,362 ft. without sign of production in that formation. Hole was then plugged back to the Cretaceous and capped as a gasser after potential test was run.

**CANADIAN UNSUCCESSFUL WILDCATS**

Christina River-Hardy 1, LSD 2, 25-77-9w4, TD 2,614 ft.

Royalite-Radway 1, LSD 3, 28-58-20w4, TD 3,824 ft.

## Permian Basin

(Continued from page 380)

of sulfur water on a 4-hour drill-stem test at 4,222-4,398 ft. in the Clear Fork. The well was drilled to 6,927 ft., then plugged back to 4,398 ft. to test the Clear Fork. Ted Weiner and others 1 Moore Creek Missionary Baptist Church, northwest outpost to the field, in 246-97-H&TC, was swabbing salt water. Total depth was 6,910 ft., with top of reef at 6,830 ft., or minus 4,393 ft.

**Ector County.**—Stanolind Oil & Gas Co. 1 TXL, wildcat 2½ miles northwest of Edward C. Lawson 1 Barrow, Clear Fork discovery, flowed 156 bbl. of oil in 22½ hours, through 8 64-in. tubing choke from perforations in the Clear Fork at 5,734-42 ft. Earlier, the well had swabbed out load and then flowed 306 bbl. of new oil in 16 hours from the same perforations. Testing to 5,756 ft. was slated before making completion attempt. Location is SW NE 31-44-1S-T&P.

**Borden County.**—Standard Oil Co. of Texas 1-6 T. L. Griffin, 35-25-H&TC, 10 miles southwest of the Von Roeder Canyon discovery, topped a white lime at 7,192 ft., or minus 4,786 ft. Samples showed oil and good fractures to 7,222 ft. It was drilled ahead to 7,222 ft., and was running a drill-stem test from 7,192-7,222 ft.

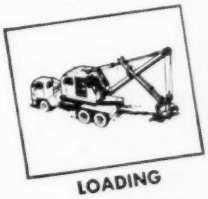
**WEST TEXAS (DISTRICTS 8 AND 7-C) WILDCAT FAILURES**

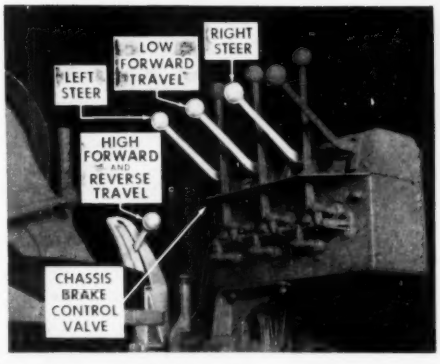
Gaines County: Amerada Petroleum Corp. 1 W. M. Breckon, 25-A-9-PSL, 5 mi. E Hobbs, N. Mex., dry, TD 6,555 ft., elev. 3,593 ft., San Andres 4,530 ft., Clear Fork 6,510 ft.

Atlantic Refining Co. 1-H T. S. Riley,


MICHIGAN

TRUCK CRANES with Remote Control



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NAME_____ TITLE_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

125-G-WTRR, 2¼ mi. W Homann gas field, dry, TD 3,570 ft., elev. 3,288 ft.

Edward C. Lawson and H. E. Chiles, Jr., 1 C. R. Woolsey and C. E. Davies, Labor 16, League 283, Schleicher CSL, 4 mi. S Cedar Lake field, dry, TD 5,350 ft., elev. 3,155 ft., San Andres 4,955 ft.

Mitchell County: Lamar Hunt Trust Est. 1 C. L. Feaster, SW SW 4-26-T&P, 4 mi. E Sharon Ridge field, dry, TD 7,669 ft., elev. 2,217 ft., Ellenburger 7,645 ft. had sulfur water.

Reagan County: Vina Bagley 1 L. C. Proctor, Sec. 4-C-L&SV Sur., 15 mi. NW Stiles, dry, TD 7,000 ft., elev. 2,707 ft., Yates 2,320 ft., Grayburg 3,670 ft., black shale 5,150 ft.

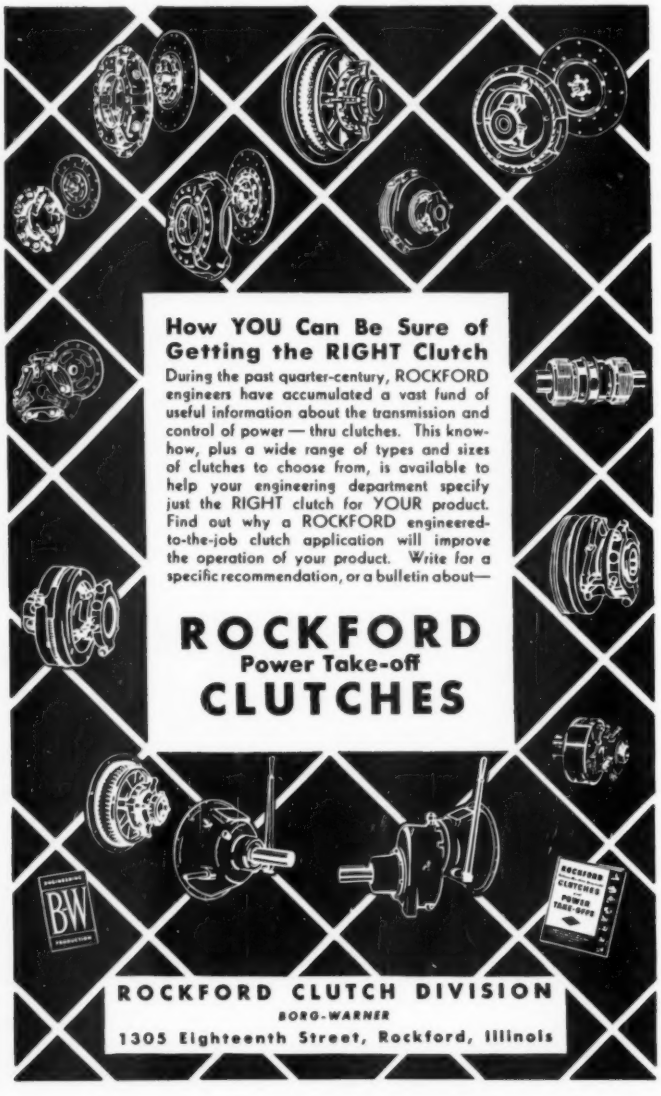
Runnels County: Humble Oil & Refining Co. 1 Norton Properties, NW NW Sec. 346, J. H. Perry Sur., 10 mi. NE No. Winters field, dry, TD 4,958 ft., elev. 2,037 ft., sand 3,418 ft., Cisco 2,322 ft., Canyon 2,830 ft., Ellenburger 4,880 ft.

Scurry County: George P. Livermore 1 H. Winston, Tract 69, 11-1-J. P. Smith Sur., 1 mi. E Kelley field, dry, TD 7,905 ft., elev. 2,423 ft., reef 6,866 ft., Strawn 7,482 ft., Ellenburger 7,885 ft.

Fred M. Manning, Inc., 1 R. S. Burrow, 165-97-H&TC, 1 mi. E Sharon Ridge Canyon field, dry, TD 7,693 ft., elev. 2,328 ft., Pennsylvania lime 6,822 ft.

Terry County: Amerada 1 A. M. Brownfield, SE SE 26-A1-ELRR, 10 mi. SE Brownfield, dry, TD 10,364 ft., elev. 3,167 ft., Yates 3,045 ft., San Andres 4,530 ft., Sprayberry 7,365 ft., Pennsylvanian 10,262 ft.

Upton County: Cities Service Oil Co. and Skelly Oil Co. 1-AD University, SE NE 10-14-University Lands, 15 mi. N Iraan, 1 mi. NE Crockett field, dry, TD 7,837 ft., elev. 2,353 ft., San Andres 1,900 ft., San Angelo 2,352 ft., Devonian 6,430 ft., Silurian 6,735 ft., Simpson 6,885 ft., Ellenburger 7,685 ft.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## SOUTHEASTERN NEW MEXICO

HOBBS—Humble Oil & Refining Co. 1 Wiggs, SW NE 31-24s-27e, New Mexico's deepest operation, cored from 14,646 ft. to 14,711 ft. and prepared to drill ahead. Five cores from that interval recovered hard sand, with no shows reported.

Magnolia Petroleum Co. 1-B Betenbaugh, NE NE 14-9s-35e, southwest extension to the Bough field of Lea County, gaged 444 bbl. of 47 -gravity oil in 19 hours, flowing through ¼-in. choke. Total depth was 9,659 ft., plugged back to 9,638 ft. where 7-in. casing was set. Perforations were not reported, but top of pay was around 9,600 ft.

Magnolia 1 Walker, SW SW 8-9s-36e, 2-mile east extension to the Bough field, made a natural completion of 502 bbl. of 47 -gravity oil in 24 hours. Total depth was 9,729 ft., and 7-in. casing was set at 9,715 ft.

Amerada Petroleum Corp. 2-BTD State, 35-11s-33e, northeast extension attempt to the Bagley field, drilled ahead at 9,075 ft., following a 4-hour drill-stem test at 8,958-9,034 ft., which had gas in 28 minutes and recovered 300 ft. of gas-cut mud, plus 550 ft. of heavily oil and gas-cut mud estimated to be 50 per cent oil. Flowing pressure was 215 psi.

Gulf Oil Corp. 1 Maud Saunders, SE SW 34-14s-33e, 13 miles southeast of production in the Caprock field, completed for a daily potential of 984 bbl. of oil plus 456 bbl. of salt water. Total depth was 13,232 ft., plugged back to 10,709 ft. Pay was from the Pennsylvanian around 9,865-82 ft.

Stanolind Oil & Gas Co. 1 Anna Foster, NW SE 23-19s-38e, 3 miles north of production in the Nadine field, was testing after plugging back to 7,560 ft. The well failed to respond to a 1,500-gal. acid treatment; was swabbed dry and treated with 10,000 gal. When swabbed out it flowed 342 bbl. of fluid in 24 hours through 32 64-in. choke, cut 37 per cent with sediment and water. Gravity of the oil was 29 . It was shut in 4 hours, then flowed 93 bbl. of fluid, cut 14 per cent, then flowed 118 bbl. of fluid cut 16 per cent with mud and no water, through 16 64-in. choke. Gravity on the later gage was 36 . Time of the test was not reported. Flowing pressures were 75 psi. on tubing and 400 psi. on casing.

Stanolind extended the House field ¾ mile south at its 1 D. E. House, NE SE 11-20s-38e. Total depth was 4,440 ft., plugged back to 4,347 ft. Completion potential was 99 bbl. of oil a day from perforations at 4,276-96 ft.

## SOUTHEAST NEW MEXICO WILDCAT FAILURE

Lea County: Amerada Petroleum Corp. 1-WHA State, NE NE 33-18s-37e, 7 mi. W Hobbs, dry, TD 4,525 ft., elev. 3,705 ft., anhydrite 1,625 ft., salt 1,980-2,740 ft., Yates 2,920 ft.

## P. G. & E. Completes Line To Steam-Electric Plant

Pacific Gas & Electric Co. has completed installation of a 3,500-ft. submarine line designed to supply the company's new Moss Landing steam-electric plant on Monterey Bay, Calif. with fuel oil. Approximately 13,500 bbl. of fuel oil daily will be required to operate the 402,000 hp. generator plant.

The marine line is 18-in., Somastic coated, and connects at the shore end with a 24-in. line which extends under the harbor channel and about ½ mile inland.

At the sea end of the line is a 200-ft., 12-in. sea hose attached to a buoy. The pipe was assembled into one 660-ft. and six 480-ft. sections, which were pulled into the water by winches on a barge.

# Two-Thirds of 1949 Completions Successful in Oil and Gas Research

**by Polly DeArmond**

DURING 1949 operators completed a near-record number of wells, of which two-thirds were successful in the search for oil or gas production. Out of 39,038 completions 1,382 were drilled as service wells. The remaining total number of 37,656 was made up of 22,042 oil producers, 2,887 gas wells, and 12,727 dry holes.

### December vs. December 1948

Comparison of the month's completion and footage statistics with those for December of the previous year reflect drops of 321 wells, or 8.8 per cent, and 1,336,557 ft., or 10.2 per cent.

Two areas noted increases in completions but decreases in footage. The North Central division, including Ohio, Indiana, Kentucky, Illinois, and Michigan, was up 39 wells, or 7.2 per cent, but down 73,730 ft., or 5.1 per cent, from the preceding December. The Oklahoma-Kansas section gained 25 wells, or 3.4 per cent, but fell off 139,729 ft., or 5.3 per cent.

The Eastern area (New York, Pennsylvania, and West Virginia) continued its steady decline in operations throughout the year and reported 161 fewer wells (40.6 per cent) and 307,882 ft. less (42.3 per cent) than for the same month of 1948.

Texas and New Mexico completions were down 126, or 9.2 per cent, with an accompanying drop of 443,969 ft., or 7.7 per cent. The Rocky Mountain region, composed of Montana, Wyoming, Colorado, and Utah, decreased 23 wells, or 25.3 per cent and 37,711 ft., or 11.1 per cent.

During December 1949, shallower wells were drilled in the Southern states and Pacific Coast, in comparison with figures for that month in 1948. The Louisiana-Arkansas-Mississippi-Alabama-Florida-Georgia group was off only eight wells, or 0.3 per cent, but fell 9.2 per cent in footage with a loss of 147,890 ft. California reported 67 fewer completions, down 3.1 per cent, but dropped 196,746 ft., a decline of 24.1 per cent.

### Other Comparisons

December's activity lagged 5 per cent behind that of the preceding month, but edged slightly past the footage drilled in November. The Southern states were up 4.7 per cent in wells and 8.2 per cent in footage; the Mid-Continent area gained 3.7 per cent in wells and 3.2 per cent in footage. Texas and New Mexico completions were down 1.7 but footage increased 4.8 per cent.

The Rocky Mountain and Pacific areas recorded the sharpest drops: Rockies down 33.9 per cent in wells and 32.8 per cent in footage; California off 29.1 per cent in completions and 25.2 per cent in footage compared with November. The North Central section and Eastern fields reported declines in both well completions and footage drilled.

## SUMMARY OF COMPLETIONS, DECEMBER, 1949

| | Total comp. | Oil | Gas | Dry | Under 2,500 ft. | 2,500-5,000 ft. | 5,000-7,500 ft. | 7,500-10,000 ft. | 10,000-12,500 ft. | Over 12,500 ft. | Total footage | Rigs and drilling |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| New York | 70 | 35 | 0 | 35 | 70 | 0 | 0 | 0 | 0 | 0 | 100,000 | 65 |
| Pennsylvania | 113 | 53 | 19 | 41 | 99 | 14 | 0 | 0 | 0 | 0 | 199,631 | 231 |
| West Virginia | 52 | 12 | 29 | 11 | 35 | 17 | 0 | 0 | 0 | 0 | 120,423 | 137 |
| Ohio | 80 | 23 | 24 | 33 | 48 | 31 | 1 | 0 | 0 | 0 | 158,070 | 136 |
| Indiana | 85 | 31 | 1 | 53 | 71 | 14 | 0 | 0 | 0 | 0 | 156,789 | 131 |
| Kentucky | 102 | 55 | 19 | 28 | 64 | 37 | 1 | 0 | 0 | 0 | 202,490 | 84 |
| Illinois | 233 | 107 | 1 | 125 | 143 | 90 | 0 | 0 | 0 | 0 | 486,546 | 327 |
| Michigan | 78 | 32 | 2 | 44 | 50 | 26 | 2 | 0 | 0 | 0 | 182,201 | 158 |
| Kansas | 340 | 150 | 52 | 138 | 70 | 270 | 0 | 0 | 0 | 0 | 1,054,388 | 416 |
| Neb., Mo., Iowa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| Oklahoma | 422 | 244 | 24 | 154 | 157 | 182 | 62 | 12 | 9 | 0 | 1,421,712 | 718 |
| Texas | 1,203 | 796 | 50 | 357 | 345 | 441 | 295 | 102 | 18 | 2 | 5,130,771 | 1,459 |
| North | 206 | 124 | 1 | 81 | 110 | 74 | 22 | 0 | 0 | 0 | 560,599 | 161 |
| West Central | 155 | 95 | 4 | 56 | 68 | 82 | 5 | 0 | 0 | 0 | 453,452 | 151 |
| West | 279 | 239 | 2 | 38 | 54 | 84 | 120 | 18 | 2 | 1 | 1,392,409 | 641 |
| Panhandle | 58 | 43 | 10 | 5 | 5 | 52 | 0 | 0 | 0 | 1 | 184,816 | 109 |
| East | 102 | 74 | 2 | 26 | 14 | 53 | 20 | 12 | 3 | 0 | 455,971 | 63 |
| Gulf Coast | 222 | 127 | 21 | 74 | 29 | 52 | 75 | 54 | 12 | 0 | 1,311,657 | 193 |
| Southwest | 181 | 94 | 10 | 77 | 65 | 44 | 53 | 18 | 1 | 0 | 771,867 | 141 |
| Louisiana | 238 | 145 | 21 | 72 | 105 | 35 | 30 | 34 | 31 | 3 | 1,171,417 | 236 |
| Northern | 150 | 91 | 21 | 38 | 102 | 25 | 16 | 5 | 2 | 0 | 424,598 | 60 |
| Southern | 88 | 54 | 0 | 34 | 3 | 10 | 14 | 29 | 29 | 3 | 746,819 | 176 |
| Arkansas | 18 | 9 | 0 | 9 | 7 | 9 | 2 | 0 | 0 | 0 | 56,833 | 11 |
| Mississippi | 26 | 12 | 1 | 13 | 0 | 1 | 12 | 11 | 2 | 0 | 192,145 | 27 |
| Ala., Ga., Fla. | 6 | 2 | 0 | 4 | 0 | 3 | 2 | 0 | 1 | 0 | 33,318 | §11 |
| Montana | 15 | 11 | 2 | 2 | 9 | 5 | 1 | 0 | 0 | 0 | 39,806 | 73 |
| Wyoming | 46 | 26 | 1 | 19 | 4 | 16 | 23 | 0 | 1 | 2 | 230,663 | *134 |
| Colorado | 6 | 1 | 1 | 4 | 1 | 2 | 3 | 0 | 0 | 0 | 28,813 | 21 |
| Utah | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4,255 | 16 |
| New Mexico | 35 | 19 | 5 | 11 | 7 | 15 | 7 | 3 | 2 | 1 | 166,371 | 68 |
| California | 146 | 114 | 2 | 30 | 53 | 55 | 22 | 11 | 3 | 2 | 618,654 | 131 |
| Total December 1949 | 3,315 | ‡1,877 | 254 | *1,184 | 1,338 | 1,264 | 463 | 173 | 67 | 10 | 11,755,236 | ‡4,607 |
| Total November 1949** | 3,490 | 1,980 | 264 | 1,246 | 1,440 | 1,386 | 448 | 152 | 56 | 8 | 11,742,450 | 4,505 |
| Total December 1948 | 3,636 | 2,036 | 269 | 1,331 | 1,341 | 1,540 | 447 | 207 | 101 | | 13,091,793 | 4,961 |
| Cumulative 1949** | 39,038 | 22,042 | 2,887 | 14,109 | 15,149 | 15,913 | 4,939 | 1,966 | 904 | 137 | 138,002,964 | |
| Cumulative 1948 | 39,778 | 22,585 | 2,897 | 14,109 | 15,149 | 15,913 | 4,939 | 1,996 | 904 | 137 | 138,002,964 | |

*Incl. 93 service wells: N. Y. 35, Pa. 37, Ohio 3, Ill. 1, Kans. 4, Okla. 8, No. Tex. 2, W. Cent. Tex. 2, W. Tex. 1. †Incl. 32 distillate wells: Okla. 2, E. Tex. 8, Tex. Gulf 10, SW. Tex. 2, No. La. 2, So. La. 5, Ark. 1, Miss. 2. ‡Incl. all wells rigged up and or drilling at end of month. §Incl. 5 Tenn. *Incl. 4 Dak. Incl. 3 Wash. **Revised.

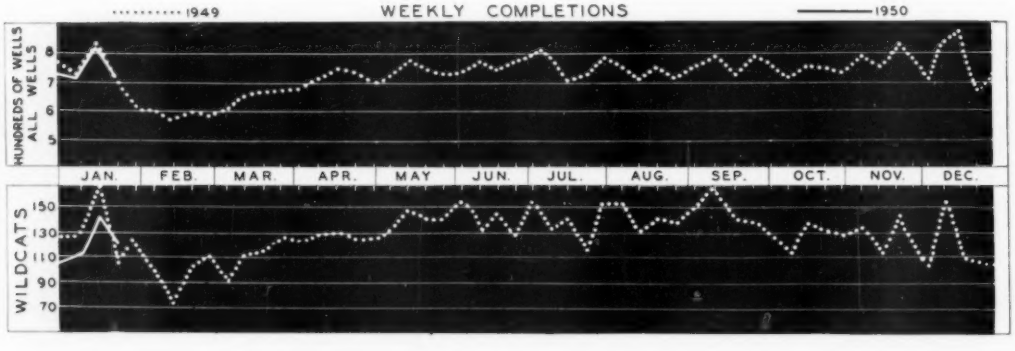
# CURRENT STATISTICS

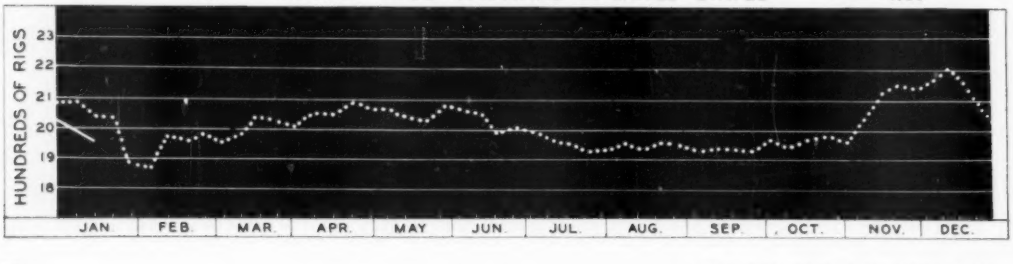
## EXPLORATION

### WEEKLY WELL COMPLETIONS . . . . WEEK ENDED JANUARY 21, 1950

| | Total of all wells | | | | | Jan. 21 | | Wildcat completions and discoveries | | | | | Cumulative total, 1950 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Comp. | Oil | Gas | Dry | Footage | 1950 | 1949 | Oil | Dist. | Gas | Dry | Total | Oil | Dist. | Gas | Dry | Total |
| New York | 12 | 6 | 0 | *6 | 19,042 | 42 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pennsylvania | 24 | 10 | 3 | †11 | 37,479 | 70 | 111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Virginia | 11 | 2 | 5 | 4 | 30,743 | 31 | 32 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 2 |
| Ohio | 9 | 2 | 4 | 3 | 25,069 | 48 | 67 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 2 |
| Indiana | 19 | 9 | 1 | 9 | 35,314 | 75 | 66 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 7 | 10 |
| Kentucky | 17 | 14 | 0 | 3 | 21,151 | 57 | 32 | 1 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 4 | 6 |
| Illinois | 34 | 17 | 0 | 17 | 73,456 | 147 | 134 | 2 | 0 | 0 | 9 | 11 | 2 | 0 | 0 | 29 | 31 |
| Michigan | 12 | 10 | 0 | 2 | 33,930 | 51 | 56 | 2 | 0 | 0 | 2 | 4 | 6 | 0 | 0 | 18 | 24 |
| Kansas | 74 | 35 | 11 | 28 | 239,740 | 177 | 178 | 3 | 0 | 0 | 7 | 10 | 4 | 0 | 0 | 25 | 29 |
| Neb., Mo., Iowa | 5 | 1 | 0 | 4 | 19,888 | 6 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 4 | 4 |
| Oklahoma | 78 | 50 | 3 | §25 | 328,525 | 250 | 241 | 4 | 0 | 0 | 7 | 11 | 9 | 0 | 2 | 28 | 39 |
| Texas | 273 | 177 | 15 | 81 | 1,127,758 | 849 | 800 | 4 | 1 | 4 | 37 | 46 | 25 | 2 | 10 | 107 | 144 |
| North Central (Dist. 7-B & 9) | 76 | 44 | 0 | 32 | 221,010 | 233 | 251 | 0 | 0 | 0 | 11 | 11 | 6 | 0 | 0 | 31 | 37 |
| West (Dist. 7-C & 8) | 79 | 64 | 0 | 15 | 396,432 | 210 | 191 | 0 | 0 | 0 | 10 | 10 | 8 | 0 | 0 | 24 | 32 |
| Panhandle (Dist. 10) | 22 | 13 | 8 | 1 | 65,415 | 96 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Eastern (Dist. 5, 6, & 6-P) | 21 | 10 | 1 | 10 | 87,732 | 70 | 37 | 1 | 0 | 0 | 8 | 9 | 1 | 0 | 1 | 13 | 15 |
| Gulf Coast (Dist. 2 & 3) | 34 | 23 | 2 | 9 | 197,742 | 124 | 138 | 1 | 1 | 2 | 4 | 8 | 4 | 1 | 3 | 18 | 26 |
| Southwest (Dist. 1 & 4) | 41 | 23 | 4 | 14 | 159,427 | 116 | 126 | 2 | 0 | 2 | 4 | 8 | 6 | 1 | 6 | 21 | 34 |
| Louisiana | 58 | 44 | 2 | 12 | 378,659 | 175 | 150 | 4 | 2 | 0 | 3 | 9 | 5 | 3 | 1 | 11 | 20 |
| Northern | 24 | 19 | 1 | 4 | 80,559 | 104 | 93 | 1 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 7 | 9 |
| Southern | 34 | 25 | 1 | 8 | 298,100 | 71 | 57 | 3 | 2 | 0 | 2 | 7 | 3 | 3 | 1 | 4 | 11 |
| Arkansas | 9 | 7 | 0 | 2 | 24,894 | 28 | 3 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 9 | 9 |
| Mississippi | 3 | 2 | 0 | 1 | 21,152 | 17 | 21 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 4 |
| Southeastern States | 1 | 0 | 0 | 1 | 6,680 | 4 | 4 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| Montana | 11 | 5 | 1 | 5 | 22,482 | 16 | 10 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 4 | 4 |
| Wyoming | 6 | 4 | 0 | 2 | 31,111 | 45 | 23 | 1 | 0 | 0 | 2 | 3 | 3 | 0 | 0 | 9 | 12 |
| Colorado-Utah | 2 | 0 | 0 | 2 | 6,423 | 14 | 17 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 10 | 10 |
| New Mexico | 20 | 9 | 8 | 3 | 74,938 | 42 | 32 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 3 | 4 |
| California | 38 | 27 | 1 | 10 | 177,886 | 102 | 164 | 0 | 0 | 1 | 9 | 10 | 3 | 0 | 1 | 14 | 18 |
| Dakotas | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Total United States | 716 | 431 | 54 | 231 | 2,736,260 | 2,247 | 2,198 | 22 | 3 | 6 | 90 | 121 | 63 | 5 | 16 | 290 | 374 |
| Total previous week | 817 | 497 | 45 | 275 | 3,281,585 | | | 20 | 2 | 2 | 118 | 142 | 41 | 2 | 10 | 200 | 253 |
| Total January 22, 1949 | 719 | 415 | 58 | 246 | 2,627,746 | | | 9 | 1 | 3 | 93 | 106 | 59 | 3 | 6 | 334 | 402 |

Service wells included: *6, †10, ‡3, §2.



## DAILY AVERAGE PRODUCTION FOR WEEK

| | Jan. 21 crude oil | B. of M. Jan. demand | Jan. 14 crude oil |
|---|---|---|---|
| Alabama | 1,650 | 1,200 | 1,500 |
| Arkansas | 79,400 | 82,000 | 75,100 |
| California | 867,400 | 836,000 | 867,000 |
| Colorado | 58,700 | 70,000 | 59,300 |
| Eastern | 56,000 | 59,900 | 56,800 |
| Florida | 1,025 | 1,000 | 1,000 |
| Illinois | 173,700 | 185,000 | 176,900 |
| Indiana | 26,200 | 29,000 | 27,300 |
| Kansas | 293,050 | 295,000 | 255,400 |
| Kentucky | 26,500 | 24,000 | 26,300 |
| Louisiana | 538,375 | 546,000 | 539,825 |
| North Louisiana | 120,350 | | 121,800 |
| South Louisiana | 418,025 | | 418,025 |
| Michigan | 44,200 | 45,000 | 44,600 |
| Mississippi | 96,300 | 104,000 | 101,100 |
| Montana | 23,500 | 25,000 | 23,700 |
| Nebraska | 1,500 | 700 | 1,500 |
| New Mexico | 131,225 | 136,000 | 131,225 |
| Oklahoma | 395,950 | 420,000 | 398,400 |
| Texas | 1,929,000 | 2,200,000 | 1,929,000 |
| Dist. 1 (Southwest) | 26,200 | | 26,200 |
| Dist. 2 (Southwest) | 112,850 | | 112,850 |
| Dist. 4 (Southwest) | 178,200 | | 178,200 |
| Dist. 3 (Gulf Coast) | 357,575 | | 357,575 |
| Dist. 5 (Eastern) | 32,550 | | 32,550 |
| Dist. 6 (Eastern) | 81,425 | | 81,425 |
| East Texas field | 222,000 | | 222,000 |
| Dist. 7-C (West) | 46,950 | | 46,950 |
| Dist. 8 (West) | 572,850 | | 572,850 |
| Dist. 7-B (W. Central) | 62,300 | | 62,300 |
| Dist. 9 (N. Central) | 143,500 | | 143,500 |
| Dist. 10 (Panhandle) | 92,600 | | 92,600 |
| Utah | 2,500 | 1,200 | 3,100 |
| Wyoming | 130,000 | 129,000 | 130,500 |
| Total United States | *4,876,175 | 5,190,000 | 4,849,550 |
| Change from previous week, up | 26,625 | | |

Total U. S. production, January 1-January 21 †104,061,615 bbl.
Same period last year (crude plus cond.) 116,254,640 bbl.

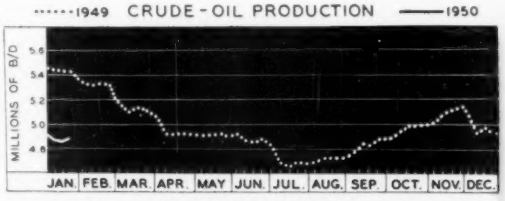
*Not incl. 91,860 bbl. condensate. †Incl. 1,874,040 bbl. condensate.

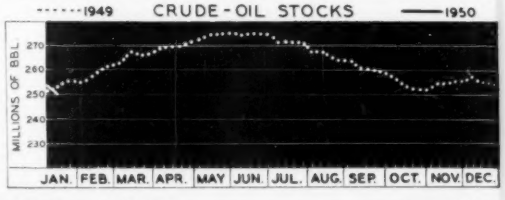
## CRUDE-OIL STOCKS BY STATES OF ORIGIN*

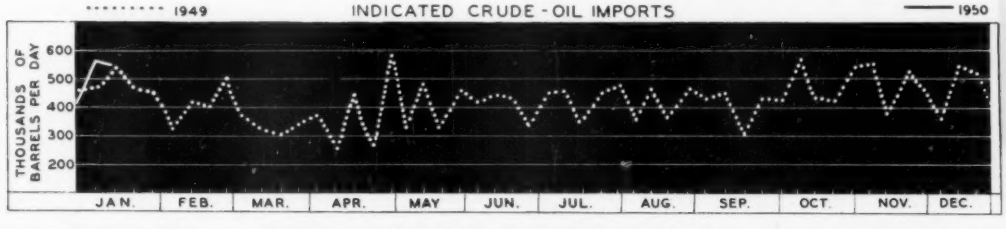
(Thousands of barrels)

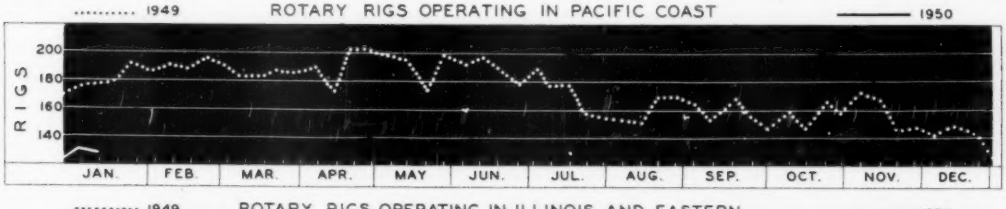
| | Jan. 14, 1950 | Jan. 7, 1950 | Jan. 15, 1949 |
|---|---|---|---|
| Pennsylvania Grade | 2,756 | 2,745 | 2,878 |
| Other Appalachian | 1,751 | 1,810 | 1,432 |
| Illinois, Indiana, Michigan | 11,270 | 11,610 | 13,708 |
| Arkansas | 3,045 | 3,110 | 3,292 |
| Louisiana | 14,160 | 13,993 | 12,669 |
| North | 3,726 | 3,558 | 3,196 |
| Gulf | 10,434 | 10,435 | 9,473 |
| Mississippi | 2,429 | 2,053 | 2,525 |
| New Mexico | 7,647 | 7,397 | 6,392 |
| Oklahoma and Kansas | 37,348 | 37,999 | 35,698 |
| Texas | 111,133 | 112,419 | 120,818 |
| East Texas | 15,489 | 15,138 | 15,294 |
| West Texas | 40,846 | 41,124 | 47,270 |
| Texas Gulf | 28,730 | 29,450 | 29,917 |
| Other Texas | 26,068 | 26,707 | 28,337 |
| Rocky Mountain | 13,329 | 13,286 | 12,666 |
| California | 37,821 | 37,977 | 32,479 |
| Foreign | 7,178 | 6,825 | 7,980 |
| Total United States | 249,867 | 251,224 | 252,537 |

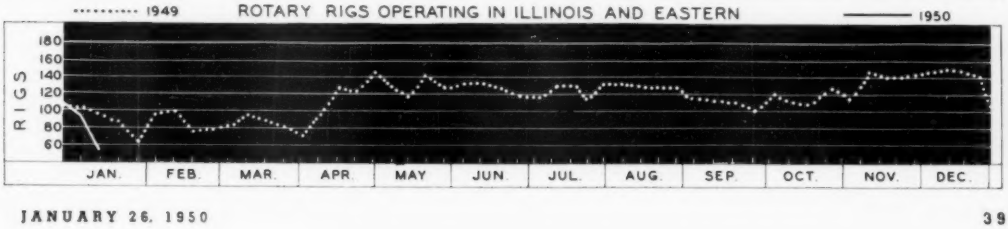
*Bureau of Mines.



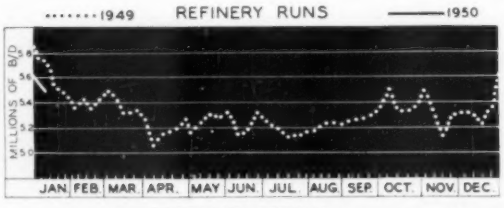
## A.P.I. REFINERY REPORT, JANUARY 14

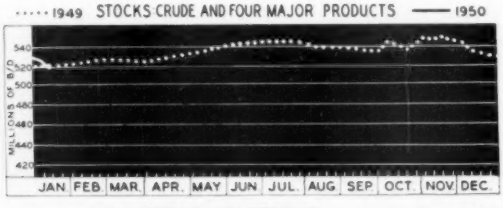
(Thousands of barrels)

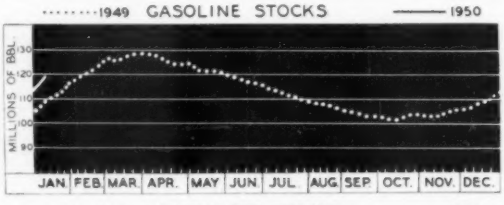
| District | Daily avg. crude runs | Daily average production: Gasoline* | Kerosine | Distillate | Residual | Stocks at refineries, bulk terminals, in transit and in pipe lines: Gasoline† | Kerosine | Distillate | Residual |
|---|---|---|---|---|---|---|---|---|---|
| East Coast | 879 | 357.9 | 44.6 | 201.4 | 217.6 | 24,043 | 8,368 | 23,378 | 11,824 |
| Appalachian: | | | | | | | | | |
| District 1 | 96 | 47.3 | 7.7 | 14.9 | 10.4 | 2,721 | 334 | 759 | 331 |
| District 2 | 72 | 34.7 | 4.9 | 10.6 | 15.3 | 1,303 | 123 | 235 | 104 |
| Ind., Ill., Ky. | 989 | 505.6 | 70.6 | 170.1 | 174.4 | 24,329 | 3,741 | 9,703 | 3,728 |
| Okla., Kans., Mo. | 463 | 266.4 | 30.8 | 80.8 | 59.6 | 11,972 | 1,011 | 4,677 | 1,351 |
| Inland Texas | 192 | 139.6 | 9.4 | 23.7 | 34.4 | 4,258 | 413 | 730 | 797 |
| Texas Gulf Coast | 1,270 | 613.8 | 117.7 | 288.0 | 223.7 | 17,960 | 2,635 | 13,889 | 6,080 |
| La. Gulf Coast | 451 | 206.1 | 68.1 | 110.4 | 53.9 | 6,745 | 1,179 | 3,716 | 2,053 |
| N. La. and Ark. | 76 | 27.9 | 5.3 | 11.4 | 13.7 | 2,903 | 261 | 507 | 280 |
| Rocky Mountain: | | | | | | | | | |
| New Mexico | 12 | 6.1 | | 1.9 | 2.7 | 94 | 25 | 77 | 32 |
| Other Rocky Mtn. | 161 | 77.7 | 9.6 | 24.3 | 35.7 | 3,875 | 225 | 1,536 | 651 |
| California | 826 | 348.6 | 14.0 | 147.6 | 309.9 | 18,641 | 902 | 11,868 | 32,772 |
| January 14, 1950 | 5,487 | 2,631.7 | 382.7 | 1,085.1 | 1,151.3 | 118,844 | 19,217 | 71,075 | 60,003 |
| January 7, 1950 | 5,524 | 2,672.9 | 383.9 | 1,049.7 | 1,190.9 | 116,774 | 20,215 | 75,338 | 61,715 |
| January 15, 1949 | 5,789 | 2,633.1 | 394.6 | 1,112.0 | 1,421.4 | 109,219 | 22,471 | 66,018 | 63,721 |

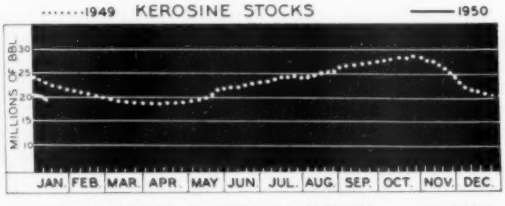
| Bureau of Mines, January 1949 | Daily avg. crude runs | Daily average production: Gasoline* | Kerosine | Distillate | Residual |
|---|---|---|---|---|---|
| | 810 | 312.8 | 33.6 | 192.9 | 223.3 |
| | 104 | 44.3 | 8.1 | 14.8 | 15.2 |
| | 71 | 37.3 | 4.3 | 6.5 | 15.8 |
| | 982 | 476.9 | 65.2 | 157.3 | 174.0 |
| | 435 | 225.9 | 24.8 | 77.2 | 75.5 |
| | 232 | 141.6 | 11.9 | 18.7 | 55.4 |
| | 1,400 | 628.1 | 111.5 | 288.2 | 247.7 |
| | 441 | 188.4 | 62.4 | 101.2 | 67.1 |
| | 72 | 29.2 | 8.4 | 9.6 | 16.1 |
| | 13 | 6.9 | .5 | 1.7 | 3.4 |
| | 151 | 68.5 | 3.1 | 24.5 | 37.1 |
| | 930 | 378.4 | 6.1 | 170.2 | 417.1 |
| | 5,641 | 2,538.3 | 339.9 | 1,062.8 | 1,347.7 |

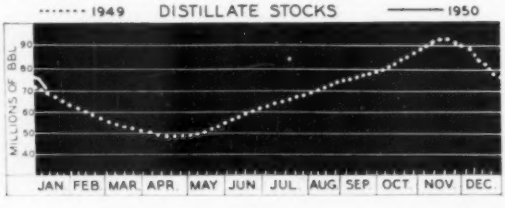
*At refineries including natural blended. †Finished and unfinished.

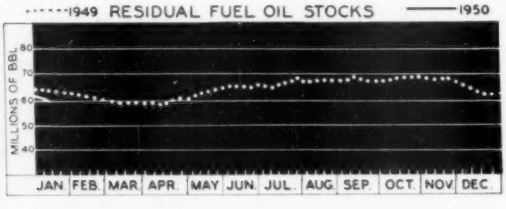


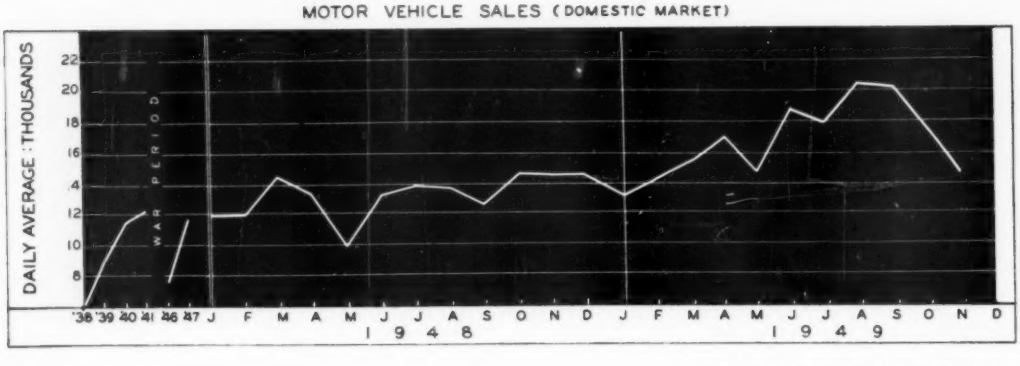





MOTOR VEHICLE SALES (DOMESTIC MARKET)
DAILY AVERAGE: THOUSANDS
WAR PERIOD
'38 '39 '40 '41 '46 '47 J F M A M J J A S O N D J F M A M J J A S O N D
1948
1949

## CRUDE PRICES
### GRAVITY SCHEDULE

| Gravity— | Signal Hill, Calif. | Oklahoma, Kansas | Gulf Coast Tex.* | West Tex.† |
|---|---|---|---|---|
| 18-18.9 | $1.53 | | | |
| 19-19.9 | 1.63 | | | |
| 20-20.9 | 1.73 | $2.25 | | $2.12 |
| 21-21.9 | 1.82 | 2.27 | | 2.14 |
| 22-22.9 | 1.92 | 2.29 | | 2.16 |
| 23-23.9 | 2.02 | 2.31 | | 2.18 |
| 24-24.9 | 2.12 | 2.33 | $2.56 | 2.20 |
| 25-25.9 | 2.22 | 2.35 | 2.58 | 2.22 |
| 26-26.9 | 2.31 | 2.37 | 2.60 | 2.24 |
| 27-27.9 | 2.37 | 2.39 | 2.62 | 2.26 |
| 28-28.9 | 2.42 | 2.41 | 2.64 | 2.28 |
| 29-29.9 | 2.48 | 2.43 | 2.66 | 2.30 |
| 30-30.9 | 2.54 | 2.45 | 2.68 | 2.32 |
| 31-31.9 | 2.59 | 2.47 | 2.70 | 2.34 |
| 32-32.9 | 2.64 | 2.49 | 2.72 | 2.36 |
| 33-33.9 | | 2.51 | 2.74 | 2.38 |
| 34-34.9 | | 2.53 | 2.76 | 2.40 |
| 35-35.9 | | 2.55 | 2.78 | 2.42 |
| 36-36.9 | | 2.57 | 2.80 | 2.44 |
| 37-37.9 | | 2.59 | 2.82 | 2.46 |
| 38-38.9 | | 2.61 | 2.84 | 2.48 |
| 39-39.9 | | 2.63 | 2.86 | 2.50 |
| 40 and above | | 2.65 | 2.88 | 2.52 |

*For crude from Daboval, El Campo, and Sand Point.

†Includes Lea County, New Mexico. Last general price change represented a 50-cent increase becoming effective December 6, 1947. Above changes do not include recent reductions of a few buyers applying principally to low-gravity grades.

## FLAT CRUDE PRICES

Representative posted schedules per barrel.

| | |
|---|---|
| East Texas* | $2.65 |
| Kettleman Hills, California* | 2.77 |
| Beauregard Parish | 2.60 |
| Illinois Basin | 2.77 |
| Pecos County, Texas (Yates) | 2.35 |
| Bradford, Pennsylvania | 3.54 |
| Eastern Ill. and Western Ind.† | 2.77 |
| Tomball, Texas Gulf Coast | 2.83 |

*37 -37.9 ... 35 and above.

FURTHER discounting and price cutting in the New York Harbor distillate market indicate the effect of warm weather on sales of No. 2 heating oil. Most suppliers are meeting discounts of 0.6 cent a gallon off the posted price of 8.5 cents. However, a few barge lots are reported available at 7.75 cents.

In a season of average weather, the half-way mark, based on degree days, is reached about the middle of January. Warm weather in the last 3 weeks of this period brought the total degree days for the season well below the average. Lack of sales in this period also added to the distillate storage problem. The end result was the series of discounts and price cuts. Distillate stocks in the East Coast area dropped only about 50,000 bbl. in the 3-week period ended January 14 compared with a reduction of 4,250,000 bbl. in the same period last year and 5,156,000 bbl. in the first 3 weeks of December.

The reduction in heating requirements is also affecting the kerosine market in the northeastern states. Most of the harbor movement is still at 9.5 cents a gallon, but improvement in supply is shown by sales as low as 9.1 cents.

Heating-oil demand in the Mid-Continent area presents a contrasting picture. Markets are firm and prices still have an upward trend. Pipe-line movement of distillate, restricted by capacity, is not enough to cover increased demand in the north-central states. The result has been a big jump in demand for tank cars.

Heavy fuel prices in the Mid-Continent moved up about 10 cents a barrel with very little material available on the open market. Most suppliers are booked up until the first of March.

## REPRESENTATIVE QUOTATIONS

Representative spot-market quotations of leading suppliers as of January 23, 1950. Figures are f.o.b. plant for tank-car shipments in cents per gallon, except for residual fuel oil which shows the price per barrel and wax, in cents per pound.

### GASOLINE, KEROSINE, AND FUEL OILS

| | Mid-Continent Group 3 | New York Harbor (barge) | Tex. Gulf Coast |
|---|---|---|---|
| Regular gasoline, 74-76 octane | $9^3/_8$-$9^7/_8$ | 10.5-11.1 | 9-$9^3/_4$ |
| Premium gasoline, 78-80 octane | $10^3/_8$-$10^7/_8$ | 11.5-12.1 | $9^3/_4$-$10^3/_4$ |
| 42-44 w.w. kerosine | $8^1/_4$-$8^1/_2$ | 9.1-9.5 | $8^1/_4$-$8^1/_2$ |
| No. 2 straw fuel oil | $7^3/_8$-$7^5/_8$ | 7.75-8.5 | 7-$7^1/_4$ |
| No. 6 residual | $1.35-1.40 | $2.05 | $1.65-1.75 |

### NATURAL GASOLINE

| | Group 3 | North Texas | N. La. |
|---|---|---|---|
| Grade 26-70 | $5^7/_8$ | $5^3/_8$ | $5^5/_8$ |
| Grade 18-55 | 7.1 | 6.5 | 6.8 |

### LUBRICATING OILS

**South Texas**

| | |
|---|---|
| 200 vis., No. 2-3 neutral | 10.5 |
| 750 vis., No. 3-4 neutral | 12.75 |
| 2,000 No. 5-6 neutral | 14-14.5 |

### LUBRICATING OILS

**Mid-Continent**

| | |
|---|---|
| 150-160 vis., D bright stock, 0-10 pp. | 17-19 |
| 200 vis., No. 3 neutral, 0-10 pp. | 11.5-14 |

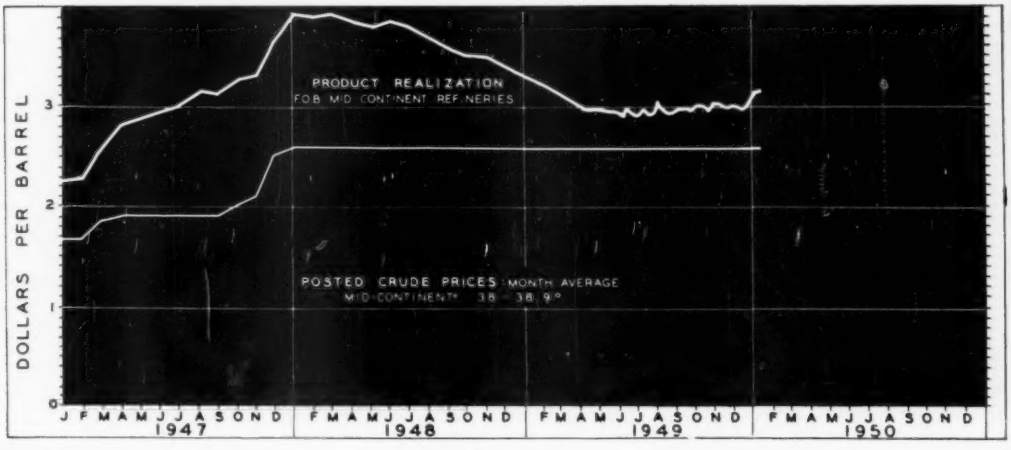
**Western Pennsylvania**

| | |
|---|---|
| 145-155 vis., 10 p.t. bright stock | 19.5-20.5 |
| 180 vis., 0 p.t. neutral | 20.5-21.5 |

### WAX

**Mid-Continent**

| | |
|---|---|
| 132-134 A.M.P. | 4.25 |


DOLLARS PER BARREL
3
2
1
0
PRODUCT REALIZATION
F.O.B. MID-CONTINENT REFINERIES
POSTED CRUDE PRICES: MONTH AVERAGE
MID-CONTINENT 38 - 38.9°
J F M A M J J A S O N D
1947
F M A M J J A S O N D
1948
F M A M J J A S O N D
1949
F M A M J J A S O N D
1950

*In this trend chart refinery realization is based on average Mid-Continent grade crude oil (not 38° gravity only) and average prices for refinery products as published in The Oil and Gas Journal basis Oklahoma (Group 3). Refinery yields confined to gasoline, kerosine, distillate, and fuel oil*

1st NATIONAL

# STATEMENT OF CONDITION

*At the close of business December 31, 1949*

## ASSETS

| | |
|---|---|
| Cash on Hand and Due from Banks | $132,990,888.35 |
| United States Securities Owned | 75,133,170.32 |
| State, County and Municipal Bonds and Other Securities | 10,604,503.82 |
| Loans and Discounts | 136,057,855.69 |
| Banking House and Equipment | 2,949,679.95 |
| Other Assets | 7,183.30 |
| | $357,743,281.43 |

## LIABILITIES

| | | |
|---|---|---|
| Capital Stock | | $ 7,500,000.00 |
| Surplus Fund | | 7,500,000.00 |
| Undivided Profits | | 6,285,773.14 |
| | | $ 21,285,773.14 |
| Reserved for Taxes, Etc. | | 2,351,213.77 |
| Reserved for Contingencies | | 1,533,530.06 |
| DEPOSITS: | | |
| Individual | $205,818,275.58 | |
| Banks and Bankers | 119,690,087.28 | |
| U. S. Gov't. | 7,064,401.60 | $332,572,761.46 |
| | | $357,743,281.43 |

**First National Bank in Dallas** MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

*Dallas Clearing House Membership No. 1*

## it's the teeth that count

The pyramidal teeth give greater strength and an extra strong biting grip—developed for flame hardened and hard metal surfaced wear subs and tool joints—especially valuable for use on casing. Available for all lengths of 1" or 1¼" die slots for all makes of rotary and casing tongs.

**TIGER TOOTH TONG DIES**

**WEB WILSON** Oil Tools INC. Field Proven

**RIG BUILDERS AND FARM BOSSES . . .**
It's a dream come true!

the 3½ S Eclipse Mixer

- A FULL HALF-BAGGER
- QUICK UNIFORM MIXING
- AMPLE POWER
- DUST PROOF
- CONSTANT SPEED
- EASY ROAD-ABILITY
- 5:00x15 TIRES
- POSITIVE GEARED DISCHARGE

Here at last, a mixer especially designed for the oil field contractor. The rugged all-steel construction, ample power and uniform mixing meets all oil field requirements. 5:00 x 15 tires and a telescoping tongue hitch means easy moving from location to location.

*WRITE OR WIRE FOR DETAILS*

MANUFACTURED BY
**GEO. C. CHRISTOPHER & SON IRON WORKS**
*FOR FORTY YEARS THE WORLD'S BEST IN CONCRETE MACHINES*
P. O. BOX 610 WICHITA, KANSAS

# EQUIPMENT MEN . . . in the News

## Askins Represents Sterling In Foreign Markets

Sterling Packing & Gasket Co., Houston, has announced the appointment of Jack Askins as foreign sales representative with headquarters in New York.

With the exception of 5 years with the U. S. Army Corps of Engineers, Askins has been engaged in oil industry sales and engineering since 1935. He has spent 2 years in South America in an executive capacity for American Rolling Mill Co., A.I.C. division. Since 1946 he has been export representative for some of the industry's largest equipment manufacturers.

## Parks Made Bethlehem Division Sales Manager

Bethlehem Supply Co. has announced the appointment of Fred Parks as division sales manager for the Houston-Gulf Coast area, and J. V. Spalding has been appointed division machinery manager, assisting Parks in selling and furnishing engineering specifications of drilling and production machinery.

The Houston-Gulf Coast area includes all of Bethlehem's operations from New Orleans to McAllen, Tex. In addition to his other duties, Parks will correlate and coordinate the sales activities of field personnel located at various stores throughout this area.

Spalding has been with Bethlehem 11 years, 5 of which were spent in the Houston and Gulf Coast area. He has concentrated his efforts on the sale and specification of drilling and production machinery, and is well qualified for this new assignment.

## R. W. Kneebone Made Vice President of Houston Bank

A. D. Simpson, vice chairman of the board of directors, National Bank of Commerce, Houston, has announced that the directors have named a new vice president and promoted two bank officers.

Robert W. Kneebone, formerly managing director of the National Automobile Dealers Association in Washington, D. C., is the new vice president. James P. Simmons, a member of the bank's credit department, was elected an assistant vice president and Ovide E. Boulet, an employe of the bank for 18 years, was named a trust officer.

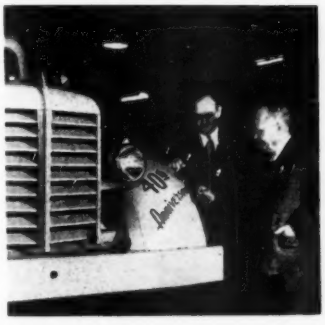
Kneebone was a staff member of the American Bankers Association for more than 16 years prior to his association with the automobile dealers association. He served as deputy manager of the association's Chicago office. He graduated from University of Michigan and attended the graduate school of banking conducted jointly by Rutgers University and the American Bankers Association.

## Weston Appoints A. H. Lamb as Vice President

Appointment of Anthony H. Lamb as vice president of Weston Electrical Instrument Corp. has been announced by Earl R. Mellen, president. Lamb, employed by the Weston corporation since 1924, will assume responsibility for the operation of the Tagliabue Division of the company, reporting directly to the president.

Starting as an instrument assembler, Lamb, in 1934 was appointed senior engineer and head of the Weston relay and control division. C. J. Tagliabue Corp. was purchased by Weston in 1948 and at that time Lamb was appointed assistant chief engineer of the Weston organization and acting chief engineer of C. J. Tagliabue the newly acquired affiliate.

## Federal Marks 40th Year Of Truck Manufacturing



*Recording a milestone in automotive history, G. H. Hammond, president, watched Carl Loud, general sales manager, apply an appropriate note to the fender of the first vehicle to roll off the company's assembly line in 1950, during ceremonies marking Federal Motor Truck Co.'s fortieth anniversary.*

## Barnett Made Assistant Sales Manager of Marsh

*R. E. BARNETT*

R. E. Barnett has been promoted to assistant sales manager of Marsh Instrument Co., sales affiliate of Jas. P. Marsh Corp., it is announced by James Emmett, Jr., sales manager. Barnett has been with the Marsh organization for the past 9 years in a sales capacity with headquarters at the company's home office in Skokie, Ill. Among his new duties, Barnett will work in close contact with the company's nation-wide sales organization to promote and maintain coordination with the home office.

## Dallas Nomads Change Chapter Designation

Name of the Dallas chapter of Nomads has been officially changed to read Dallas-Fort Worth chapter of Nomads, according to a release received from the new president, A. J. Olson. The new charter for the twin-city chapter will be officially presented at the February 6 meeting in Fort Worth by H. M. Cosgrove, the executive secretary of Nomads.

Because of the number of members attending from Fort Worth, Wichita Falls, and Weatherford, it was advisable to have the Dallas chapter become a cooperative activity of the twin cities.

Meetings will continue to be held on the first Monday of the month with the majority of the get togethers in Dallas and the remainder in Fort Worth. Definite meeting places will be assigned at a later date.

## Tube Turns Establishes Canadian Subsidiary

Tube Turns of Canada, Ltd., is establishing a modern plant in Chatham, Ont. The company will manufacture Tube-Turn welding fittings.

Preparations are now being made for the installation of special machinery and facilities, and operations will start in about 3 months in the new two-story plant, of brick construction. Tube Turns of Canada, Ltd., is a subsidiary of Tube Turns, Inc., Louisville, Ky.

*(Continued on page 400)*

# CLASSIFIED ADVERTISING

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$12.00 a column inch one issue . . .
10% Discount three or more issues.

UNDISPLAYED CLASSIFIED 12c a word one issue. 10% Discount three or more issues. $3.00 minimum charge. Blind Box in our care counts nine words. Payable in Advance.

## EQUIPMENT FOR SALE

ROLAGRIP COUPLINGS—For Sale, 100 tons, 1⅛" to 8" inclusive. New, never used, complete with bolts and neoprene gaskets. Price 50% less than manufacturers selling price. Send for list. JULIUS M. FOGELMAN, Reading, Pa.

EQUIPMENT FOR SALE: 1 Clark engine and compressor, engine 80 hp., size 16" x 15" x 7¼" x 20", 200 r.p.m. compressor, intake pressure 0 pounds discharge pressure 350 pounds, type Q compressor cylinders.
1 Bruce-McBeth gas engine, 200 hp., 4 cylinder size 13" x 16", serial 485.
Equipment second hand, in good condition.
American Liberty Oil Company, Box 1011, Mt. Pleasant, Texas.

**NEW Byron Jackson "Pup" Centrifugal Pumping Units with Chrysler Ind-9 engines — Army surplus — export boxed with parts and tools—condition perfect—supply limited—price attractive—available for immediate shipment from Houston.**

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**431 Kress Bldg. Ph. CA-1447**
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**FOR SALE**

**12—230 H.P. Type 10 Bessemer New 17" Power Cylinders complete ready to run with 16" to 18" Compressors. 1—230 H.P. Clark Horizontal with Compressors. Located Salem, Illinois.**

**ENGLE PETROLEUM, Incorporated**
**Box 655, Evansville, Indiana**

## FOR SALE

4—250 bbl. 4—500 bbl. low type
4—1,000 bbl. high type 4—1,500 bbl.
3—5,000 bbl. 5—10,000 bbl.
All NEW closed A.P.I. bolted type steel tanks
4—NEW closed welded steel tanks 7'6" dia. x 13'6" long, 3/8" shell, 3/4" bulged heads
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We carry large quantities in stock for immediate shipment of New and Guaranteed Used steel PIPE and TUBING up to 30" in diameter.

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FOR SALE: 1—36-L Bucyrus Rig, 1948 model, complete with all tools. Phone 2032, Henderson, Kentucky.

**FOR SALE: Two Fairbanks-Morse Diesel Engines, 150 H.P. Twin Cylinder, Horizontal Type. Completely overhauled. $1500.00 each. Melton Supply Co., Seminole, Okla.**

FOR SALE: We have just shut down the chemical portion of our gasoline-chemical plant in the Sasakwa Field and have available five 170 hp. Type 80 Cooper Twin Engine Compressor Units. Cities Service Oil Co., Patridge, Bartlesville, Okla.

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**A-86064—Houston, Texas**

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**8000' CAPACITY ROTARY RIG**

Unit Rig U-15 Draw works; powered by two Waukesha NKU 225 H.P. Motors; National C-250 Pump; Bethlehem 150-T Swivel; 4200 B-J Triplex Hook; Type A-250 Gumbo Buster Traveling Block; 17½" Gumbo Buster Rotary Table; Thompson LR Shale Shaker; 5000' new 4½" Drill Pipe; 3000' #2 4½" Drill Pipe. Complete Rig in excellent condition.

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**Phone L.D. 33**

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FOR SALE: K8F International tandem with front-end winch and front-end drive. Equipped with 52 bbl. tank for hauling crude. Raymond Pulliam, Wagoner, Oklahoma.

FOR SALE: 3 New 10,000 bbl. A.P.I. Columbian Bolted Steel Tanks. 160—8000 & 10,000 Gal. Tank Cars. Darien Corp., 60 E. 42nd St., N. Y., N. Y.

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| MILL LOCATION: | Pittsburgh District |

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FOR SALE: Approximately 15,000 feet of 6" OD "Invasion" Steel Pipe. Wt. about 9#, 6⅝" OD Plain Ends, 20' lengths. New condition. Also, approximately 15,000 feet of 6⅝" OD Plain End Stand Black Steel Pipe, No. 2 Grade. M. KAPLAN & SON, Box 1883, Phone 942, Monroe, Louisiana.

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Paint
Valves and fittings
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Chemicals—catalyst
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Safety and fire fighting equipment
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**PHONE: COTTON VALLEY 26**

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FOR SALE at Oklahoma City—1 Hobart Skid Type 300 Amp. Model GR Welding Machine driven by 63 HP Chrysler Engine, completely overhauled. $650.00. Cities Service Oil Co., Patridge, Bartlesville, Okla.

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**MOORE & COMPANY**
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**Tulsa, Okla.**

**FOR SALE: Rotary Drilling Corporation, operating in West Texas, consisting of two complete light rigs, two field cars, oil field 2½ ton truck with float, and office equipment; or will sell rigs separately. Box D-358, The Oil and Gas Journal, Tulsa, Oklahoma.**

## EQUIPMENT WANTED

WANTED: Two Sweetland Presses; Size #3 to 7 inclusive. Also, Oil Canner. Oklahoma Refining Company, Box 1265, Seminole, Oklahoma.

WANTED CORE DRILLING RIG, with tools and pipe for water wells. Failing 1500 or equal. T. R. Davis, 700 Mosley St., Vidalia, Georgia.

## HELP WANTED

**NEW foreign and domestic Oil Employment Directory. Over 500 listings in drilling, production, refining, natural gasoline, pipe lines, geological, exploration, supplies, manufacturers, services; and trucking, refinery and pipe line contractors, showing where to apply for jobs. Price $5.00. Oil Industry Mailing List, Box 2603, Tulsa, Okla. (Our 28th year).**

WANTED: Mechanical design engineer and draftsman with minimum three years' experience oil refinery piping engineering. Engineering degree preferred. Permanent positions for qualified men. Give complete review experience record with application. Address E. M. Skinner, Chief Engineer, Socony-Vacuum Oil Co., Inc., Augusta, Kansas.

EXPERIENCED gravity personnel for foreign work, party chiefs, surveyors, and operators. All expenses. The best opportunity in the industry to make money and advance. Exploration Surveys, Inc., 5615 Daniels Avenue, Dallas 6, Texas.

SALESMAN WANTED who calls on refineries, tool and instrument manufacturers, to offer a specialty sideline with good profit possibilities. Tulsa Cabinet and Fixture Co., 2545 East Admiral Place, Tulsa, Oklahoma.

## NOTICES

PLEASE WRITE me if you know what Company Harbor Oil Co. merged with, 1927 or after. Operated in Arkansas; also Prime Oil Co., Wichita, Texas, 1923. Appreciate this very much. John Schoenborn, 5941 No. Washtenaw Ave., Chicago 45, Ill.

## HELP WANTED

JUNIOR ENGINEER wanted by independent oil company operating in West and West Central Texas. Must be recent graduate with petroleum engineering degree. All replies should contain outline of training, past experience, if any, age, marital status, date of availability, and starting salary desired. Recent photo or snapshot would be helpful. Address Box D-342, The Oil and Gas Journal, Tulsa, Oklahoma.

ALL around practical refinery engineer for number two man U. S. company in British Colony, U. S. dollars salary, to assist Manager in supervision terminal and small refinery, general camp duties, excellent future, replies held confidential. Box D-353, The Oil and Gas Journal, Tulsa, Oklahoma.

PETROLEUM ENGINEER with production and drilling experience in Mid-Continent Area; age 28 to 35. Must have at least three years' field experience. In replying state educational background, past employment record and salary expected. All replies handled in strict confidence. Box D-350, The Oil and Gas Journal, Tulsa, Oklahoma.

SALESMAN experienced in Houston Territory as Oil Field or Industrial Salesman. Inside or outside experience. Room for advancement in established supply company. Please send complete data, experience, age. Box D-356, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED: Engineer with experience in core analysis to supervise routine laboratory and research work and interpret routine results. Advanced degree preferred. Salary open. State experience, education, and salary expected. Continental Oil Company, Personnel Division, Ponca City, Oklahoma.

SALES ENGINEER centrifugal pumps for New York and Chicago. Must be thoroughly experienced in this line. Write fully personal and selling history. Salary, expenses and commission. Strictly confidential. Dean Hill Pump Co., Indianapolis 7, Indiana.

## SITUATIONS WANTED

PETROLEUM ENGINEER: Graduate, single, 24, desires position in production field. Year's experience as junior engineer in production work, Venezuela. Good references. Box D-345, The Oil and Gas Journal, Tulsa, Oklahoma.

INSTRUMENT SUPERVISOR: Ten years experience maintenance of refinery and powerhouse installations. Familiar with fluid catalytic cracking and modern construction practices. Now employed. Prefer Rocky Mountain area. Box D-351, The Oil and Gas Journal, Tulsa, Oklahoma.

AVAILABLE March 1, 1950, Mechanical Supt., Master Mechanic, or Service and Erection Engineer. Age 35, 2 years Mechanical Engineering plus 12 years' experience, in refinery, chemical, gasoline, compressor and power house installations to 90,000 KW. Box D-343, The Oil and Gas Journal, Tulsa, Oklahoma.

**ATTENTION: Well established oil well drilling contractor desires to manage and supervise: Individuals', groups', small or medium-sized oil companies' drilling, production and operating problems in Central and Western Texas, and New Mexico Personal interview by appointment is desired. Makin Drilling Company, Box No 131. Ph. No. 131. Hobbs, New Mexico.**

GEOLOGIST with drafting ability, major oil company experience, currently active independently with Oklahoma subsurface geology, desires position with independent oil company. P.O. Box 1884, Tulsa, Oklahoma.

GRADUATE ENGINEER: With major, age 27, married, experience in flush production, water flood, and drilling. Desires opportunity in exchange for hard work, honesty, and engineering ability. Box D-355, The Oil and Gas Journal, Tulsa, Oklahoma.

AVAILABLE: EXECUTIVE SECRETARY; dept. supervisor, personnel manager or assistant. Years of experience all phases oil industry; capable assuming responsibility, correspondence, purchasing, selling. Excellent background and education. Box D-360, The Oil and Gas Journal, Tulsa, Oklahoma.

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SCURRY COUNTY, producing royalty for sale, thick reef section good reserves. Also several pieces Non producing royalty in trend. Write for particulars. Louis Egan, 6867 Gaston Avenue, Dallas, Texas.

**PRODUCING GAS ROYALTIES**
Have for sale 141 acres Carthage Gas Field producing royalties. $150 per acre. Navarro Royalties Company, Telephone 6439 or 9471, Odessa, Texas.

**LEASE AND DRILLING BLOCKS**

**SEE A. L. BOWLES, ADA, OKLA., FOR DRILLING DEALS, LEASES, ROYALTIES**

WANTED OPERATOR to furnish Portable Slim Hole Rig for testing 20,000 Acre Drill Block, for interest in the block. Excellent Geology Seepage and Geophysical Surveys on Area warrant testing. Open deal for right Operator to hit the Jack Pot. 10 Year leases. T. R. Davis, 700 Mosley St., Vidalia, Georgia.

WYOMING-POWDER River Basin, Southwest edge. Continental Oil to drill Lakota test. Will sell royalty and lease. Box D-354, The Oil and Gas Journal, Tulsa, Oklahoma.

CLIENTS wanting good producing Oil properties Kans. Okla. Also interested in drilling gas near good market. Box D-361, The Oil and Gas Journal, Tulsa, Okla.

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**Bismarck, North Dakota**
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**LEASE AND DRILLING BLOCKS**

FOR SALE: Oil and Gas Leases and drilling propositions in shallow territory of Allen, Simpson, and Warren Counties, Kentucky, W. P. Harley, Bowling Green, Kentucky.

SELL oil and gas lease near deep and shallow production. 200 acres section 9, 1 north, 5 west, Stephens County. Hattie Harrell, Phone 931 East Highway, Duncan, Oklahoma.

FOR SALE: 320-acre 10-year lease, E½ Sec-89, Blk-DD, Terry County, Texas, near proposed Ellenburger test. Call 3-1531, A. J. Welborn, 3318 27th St., Lubbock, Tex.

4,000-ACRE drilling block along Eastern Brown County and Western Comanche County lines. Write or wire: W. H. Mahon, P.O. Box 821, Brownwood, Texas.

FOR SALE: 131 acre, 10 year oil and gas lease, surrounded by major company holdings, Shelby County, Texas. Price $5 per acre. Write for information. C. A. Parker, Box 451, Center, Texas.

NORTHWESTERN COLORADO, Rio Blanco, Moffat and Routt Counties, produces 98% of all oil produced in state of Colorado. Now served by three pipe lines—have three structures mapped by major oil company geologists and U.S.G.S. within one to eight miles of pipe lines—11,000 acres of leases—will sell ½ interest, $10.00 per acre, $110,000.00 and drill three wells free. Want someone willing and able to spend some tax money for drilling—no widows or orphans—Full commission to brokers furnishing buyer. S. Marvin James, Meeker, Colorado. Phone Meeker 4.

17,000 ACRES, Great San Juan Basin, New Mexico: 10-year lease, 25c rentals. Ideally located. $1.75 acre. Small Oil Payment. Inquiry invited: Box D-349, The Oil and Gas Journal, Tulsa, Oklahoma.

**PATENT ATTORNEYS**

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# Equipment Men

*(Continued from page 397)*

## Irish Appointed Stoody Plant Metallurgist

Stoody Co. has recently acquired the services of Paul Irish as plant metallurgist, supervising production of its many hard-facing alloys. Irish graduated in 1931 from Notre Dame University with a B. S. degree in chemical engineering and metallurgy. Eight years with the Bethlehem Steel Corp. were spent as chief chemist in charge of melting procedure, as well as with their chemical and physical testing laboratories.

An equal period followed as metallurgist with Pacific Car & Foundry, where among his various responsibilities, he supervised melting practice, carbon and alloy steels and high-alloy cast iron, as well as chemical-physical heat-treating metallographic and radiographic laboratories.

## Erwin to Manage New Bethlehem Supply Service

*P. B. ERWIN*

*J. C. GRAVES*

The appointment of P. B. Erwin as manager of production and service for Bethlehem Supply Co. of California has been announced by Wendell M. Jones, vice president and general manager of the company. The appointment became effective January 1, 1950.

Erwin will manage a newly created department whose principal function will be the servicing of Bethlehem Supply machinery provided to the petroleum industry. Also effective the first of the year was the appointment of J. C. Graves, Jr., as manager of machinery sales, filling the position formerly held by Erwin.

## National Tube Co. Pipe Plant Nears Completion

Construction of National Tube Co.'s extensive new steel and pipe-making facilities at Lorain, Ohio, has been virtually completed, it is announced by John E. Goble, president of the United States Steel subsidiary.

Workmen are now putting the finishing touches on the new mills, which involve new facilities from one end of the plant to the other, from handling of raw materials to shipment of finished products.

Major units in the improvement program at Lorain are the world's first continuous seamless pipe mill, new blooming, bar, and billet mills, an entirely new Bessemer steel plant, 177 new byproduct coke ovens, and a modern warehouse for pipe storage under roof.

The new steel-making facilities boost National Tube's rated output at Lorain to approximately 2,250,000 tons annually. The mill is designed to make small-size seamless pipe products ranging from 2 to 4½ in. in diameter. The mill's rated capacity is 13,000 tons of pipe a month.

# CALENDAR

**February**

Southern Gas Association, meter and regulator conference, Houston, February 9-10.

American Institute of Mining and Metallurgical Engineers, annual meeting, Hotel Statler, New York, February 12-16.

Western Petroleum Refiners Association, regional technical meeting, Washington-Youree Hotel, Shreveport, February 24.

American Institute of Chemical Engineers, regional meeting, Houston, February 26-March 1.

American Society for Testing Materials, spring meeting, Hotel William Penn, Pittsburgh, February 27-March 3.

**March**

American Petroleum Institute, Division of Production, Southwestern District meeting, Adolphus Hotel, Dallas, March 8-10.

Indiana Independent Petroleum Association, spring convention, Hotel Severin, Indianapolis, March 9-10.

North Texas Oil and Gas Association, Kemp Hotel, Wichita Falls, March 25.

Southern Gas Association, Galveston, Tex., March 27-29.

Western Petroleum Refiners Association, annual meeting, Plaza Hotel, San Antonio, March 27-29.

American Petroleum Institute, Division of Production, Mid-Continent district meeting, Skirvin Hotel, Oklahoma City, March 29-31.

**April**

National Association of Corrosion Engineers, annual conference, Jefferson Hotel, St. Louis, Mo., April 4-7.

American Society of Mechanical Engineers, Hotel Statler, Washington, D. C., April 10-14.

Southwestern Gas Measurement Short Course, University of Oklahoma, Norman, Okla., April 11-13.

National Petroleum Association, Hotel Cleveland, Cleveland, Ohio, April 12-14.

American Petroleum Institute, Division of Production, Rocky Mountain district meeting, Gladstone Hotel, Casper, Wyo., April 13-14.

Natural Gasoline Association of America, annual convention, Texas Hotel, Fort Worth, April 24-26.

Oil Heat Institute of America and National Oil Heat Exposition, annual meeting, Commercial Museum, Philadelphia, April 24-May 1.

American Petroleum Institute, Division of Production, eastern district meeting, Cleveland Hotel, Cleveland, April 26-28.

**May**

American Petroleum Institute, Division of Refining, midyear meeting, Hotel Cleveland, Cleveland, May 1-4.

Interstate Oil Compact Commission, spring meeting, Biloxi, Miss., May 4-6.

Independent Petroleum Association of America, midyear meeting, Biltmore Hotel, Los Angeles, May 7-9.

National Stripper Well Association, Biltmore Hotel, Los Angeles, May 7-9.

American Gas Association, Natural Gas Department, spring meeting, Mayo Hotel, Tulsa, May 8-9.

Liquefied Petroleum Gas Association, annual convention, Palmer House, Chicago, May 8-11.

American Petroleum Institute, Division of Production, Pacific Coast district meeting, Biltmore Hotel, Los Angeles, May 11-12.

American Gas Association, production and chemical conference, Hotel New Yorker, New York, May 22-24.

**June**

American Society of Mechanical Engineers, oil and gas power division, Lord Baltimore Hotel, Baltimore, June 12-16.

Pennsylvania Grade Crude Oil Association, Hotel William Penn, Pittsburgh, Pa., June 15-16.

American Petroleum Institute, midyear division of production and standardization conference, Brown Palace Hotel, Denver, June 26-30.

**August**

Interstate Oil Compact Commission, summer meeting, French Lick, Ind., August 3-5.

**September**

American Society of Mechanical Engineers and Instrument Society of America, Municipal Auditorium, Buffalo, N. Y., September 11-15.

National Petroleum Association, Hotel Traymore, Atlantic City, N. J., September 13-15.

**October**

American Gas Association, annual convention, Atlantic City, N. J., October 2-6.

Mid-Continent Oil and Gas Association, Texas division, Dallas, October 4-5.

American Association of Oilwell Drilling Contractors, annual meeting Mayo Hotel Tulsa, October 9-10.

**November**

American Petroleum Institute, annual meeting, Biltmore and Ambassador Hotels, Los Angeles, November 13-16.

**NOMADS**

**Tulsa Nomads, third Friday of each month. After Five Room, Tulsa Hotel.**

**Dallas Nomads, first Monday of each month, Texas Room, Baker Hotel.**

**Houston Nomads, second Monday of each month. Ye Ole College Inn, Houston.**

**Los Angeles Nomads, second Wednesday of each month, Jonathan Club.**


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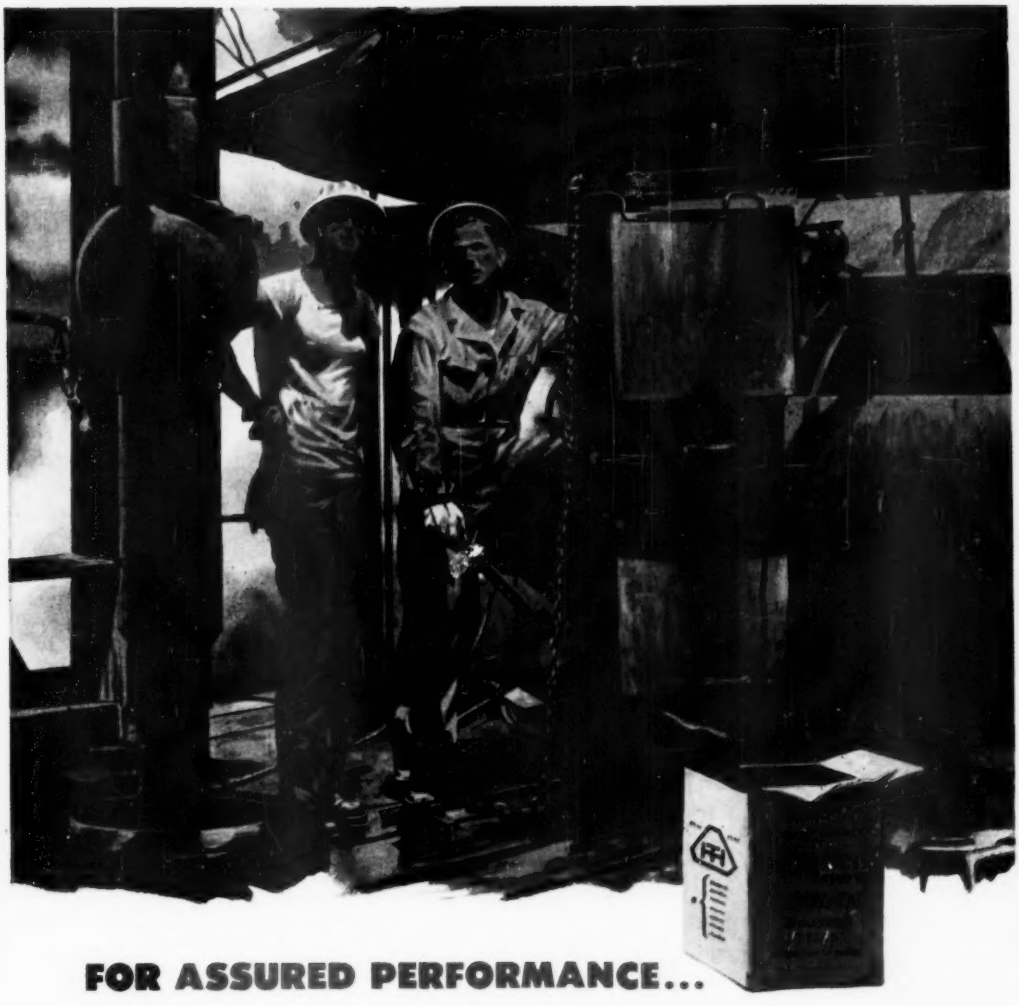

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